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For Class Four

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NATURAL NUMBERS

We have learnt about the number up to Lac In previous class. Now, we Exercise it.

Activity 1: Write down the given numbers into words.

1. **25495**
2. **15901**
3. **19052**
4. **2409**
5. **24951**
6. **33671**
7. **95252**
8. **1215**
9. **95252**
10. **10025**

Activity 2: Find the number place value of under lined digits.

1. **35<u>6</u>75**
2. **1995<u>2</u>**
3. **<u>6</u>4659**
4. **15<u>2</u>134**
5. **92<u>0</u>49**
6. **995<u>2</u>4**
7. **2537<u>9</u>**
8. **2<u>5</u>675**
9. **679<u>5</u>2**
10. **7<u>3</u>745**
11. **89<u>2</u>54**
12. **7527<u>9</u>**
13. **<u>3</u>5606**
14. **7<u>1</u>665**
15. **62<u>9</u>18**

Activity 3: Write the number into digits.

1. Four lac fifty thousand Nine hundred and one.
2. Six Lac fifty two thousand and two
3. Sixty six thousand four hundred two
4. Seven thousand Nine hundred fourteen
5. Eighty eight thousands.
6. Fifteen thousand four hundred Nineteen
7. Nine lac four hundred Ninety one
8. Fifty two thousand eight hundred fifty five
9. Eighty three thousand and four
10. Sixty two thousand seven hundred Twenty
11. Fourty thousand nine hundred & fifty eight
12. Ninty two thousand and Two.

READ AND PRACTICE NUMBERS UP TO ONE CRORE

We know that,

The least number of 6 digit is **100000**

and the greatest number of 6 digit is **999999**

Ten lac	Lac	Ten thousands	thousands	Hundreds	Tens	Units
1	0	0	0	0	0	0

So that the learnt number of seven digit is (1000000) Ten Lac, it becomes the greatest number of seven digits is (9999999) in next, eight digit number is said to be one crore (10000000).

Crore	Ten lac	Lac	Ten thousands	Thousands	Hundreds	Tens	Units
1	0	0	0	0	0	0	0

READING OF NUMBER UPTO ONE CRORE:

Seven crore fifty four lac fifty seven thousands one hundred Ninty = 75457195 **AS**

Eighty Nine Lac fifty two thousand one hundred five = (8952105)

= 8952105

READING AND WRITING IN MILLION AND BILLION:

Example

= 86,41,254

Ten lac	Lac	Ten thousands	Thousands	Hundreds	Tens	Units
8	6	4	1	2	5	4

Eight million six hundred fourty one thousand two hundred fifty four.

Example

= 91,66,512

Ten lac	Lac	Ten thousands	Thousands	Hundreds	Tens	Units
9	1	6	6	5	1	2

Nine million one hundred sixty six thousand five hundred Twelve.

ROMAN NUMBERS:

The number that are written in Roman Style are called Roman number Roman number were used before arabic number Roman shown some English letter through these letter we use can identify the exact number

1 = I	5 = V	10 = X	50 = L	100 = C	500 = D	1000 = M

ROMAN NUMBERS:

1	I	21	XXI	41	XLI	61	LXI	81	LXXXI
2	II	22	XXII	42	XLII	62	LXII	82	LXXXII
3	III	23	XXIII	43	XLIII	63	LXIII	83	LXXXIII
4	IV	24	XXIV	44	XLIV	64	LXIV	84	LXXXIV
5	V	25	XXV	45	XLV	65	LXV	85	LXXXV
6	VI	26	XXVI	46	XLVI	66	LXVI	86	LXXXVI
7	VII	27	XXVII	47	XLVII	67	LXVII	87	LXXXVII
8	VIII	28	XXVIII	48	XLVIII	68	LXVIII	88	LXXXVIII
9	IX	29	XXIX	49	XLIX	69	LXIX	89	LXXXIX
10	X	30	XXX	50	L	70	LXX	90	XC
11	XI	31	XXXI	51	LI	71	LXXI	91	XCI
12	XII	32	XXXII	52	LII	72	LXXII	92	XCII
13	XIII	33	XXXIII	53	LIII	73	LXXIII	93	XCIII
14	XIV	34	XXXIV	54	LIV	74	LXXIV	94	XCIV
15	XV	35	XXXV	55	LV	75	LXXV	95	XCV
16	XVI	36	XXXVI	56	LVI	76	LXXVI	96	XCVI
17	XVII	37	XXXVII	57	VLII	77	LXXVII	97	XCVII
18	XVIII	38	XXXVIII	58	LVIII	78	LXXVIII	98	XCVIII
19	XIX	39	XXXIX	59	LIX	79	LXXIX	99	XCIX
20	XX	40	XL	60	LX	80	LXXX	100	C

EXERCISE 1.1

i Rewrite the numbers in descriptive form.

1 3,152,567

Three million, one hundred fifty tow thousand,five hundred sixty seven

2 3,550,012

Three million, five hundred fifty thousand twelve.

3 **4,144,752**

Four million, one hundred forty four thousand seven hundred fifty two.

4 **5,677,526**

Five million six hundred seventy seven thousand five hundred twenty six.

5 **802,295**

Eight hundred two thousand two hundred ninety five.

6 **952,452**

Nine hundred fifty two thousand four hundred fifty two.

7 **6,785,812**

Six million seven hundred eighty five thousand, eight hundred twelve.

8 **8,725,129**

Eight million, seven hundred twenty five thousand, one hundred twenty nine.

9 **729,616**

Seven hundred twenty nine thousand six hundred sixteen.

10 **3,440,031**

Three million, four hundred forty thousand thirty one.

11 **8,731,901**

Eight million, seveb hundred thirty one thousand nine hundred one.

12 **679,522**

Six hundred seventy nine thousand five hundred fifty two.

ii Write the numbers in Tabular form.

1 Eleven million two hundred fifty thousand Nine hundred one.

Ans: 11,250,901

2 Four million four hundred thirty Nine thousand four hundred.

Ans: 4439,400

3 Three hundred eighty six thousand eight hundred Ninety Nine.

Ans: 386,899

4 Four million, four hundred sixty three thousand, two hundred four.

Ans: 4463204

5 Twelve thousand, Nine Hundred one

Ans: 12901

6 Sixty two thousand four hundred seventy eight.

Ans: 62478

7 Two million two hundred one.

Ans: 2000,201

8 Thirty Nine million, Nine hundred, twenty one Thousand thirty five.

Ans: 39921035

9 Four million, two hundred fifteen thousand four hundred two.

Ans: 4,215,402

10 One million four hundred sixty one thousand.

Ans: 1,461,000

iii Write the number place value of under lined digits.

1 **92<u>5</u>925** — **Ans: 5000**

2 **145<u>7</u>892** — **Ans: 400000**

3 **<u>3</u>009252** — **Ans: 3000000**

4 **467<u>5</u>124** — **Ans: 70000**

5 **9787<u>5</u>92** — **Ans: 500**

6 **5831<u>5</u>** — **Ans: 5**

7 **795<u>7</u>524** — **Ans: 20**

8 **34<u>5</u>0002** — **Ans: 400000**

9 **4<u>5</u>9291** — **Ans: 50000**

10 **25<u>3</u>790** — **Ans: 3000**

11 **4<u>5</u>3171** — **Ans: 50000**

12 **802<u>9</u>439** — **Ans: 9000**

Numbers are read and written in different languages and one written in different ways. Now a day numbers are shown in english but arabic numbers are also used.

English style	Urdu Style	Sindhi Style	English style	Urdu Style	Sindhi Style
1	۱	١	6	۶	٦
2	۲	٢	7	۷	٧
3	۳	٣	8	۸	٨
4	۴	٤	9	۹	٩
5	۵	٥	10	۱۰	١٠

***Activity:* Write the give numbers in urdu font.**

934521	3150456	459792
۹۳۴۵۲۱	۳۱۵۰۴۵۶	۴۵۹۷۹۲

EXERCISE 1.2

i Write the following number in Urdu style.

1. 9545921 — Ans: ۹۵۴۵۹۲۱
2. 7675490 — Ans: ۷۶۷۵۴۹۰
3. 1758952 — Ans: ۱۷۵۸۹۵۲
4. 725923 — Ans: ۷۲۵۹۲۳
5. 1560792 — Ans: ۱۵۶۰۷۹۲
6. 895730 — Ans: ۸۹۵۷۳۰
7. 3461032 — Ans: ۳۴۶۱۰۳۲
8. 345992 — Ans: ۳۴۵۹۹۲
9. 3390221 — Ans: ۳۳۹۰۲۲۱
10. 4455607 — Ans: ۴۴۵۵۶۰۷
11. 4603721 — Ans: ۴۶۰۳۷۲۱
12. 4037507 — Ans: ۴۰۳۷۵۰۷

ii Write the following numbers in Arabic style.

1. ۱۲۴۷۹۸ — Ans: ۱۲۴۷۹۸
2. ۱۰۲۲۴۳ — Ans: ۱۰۲۲۴۳
3. ۵۶۷۸۹۱۰ — Ans: ۵۶۷۸۹۰
4. ۳۰۲۰۶۰۷ — Ans: ۳۰۲۰۶۰
5. ۱۱۲۲۳۴ — Ans: ۱۱۲۲۳۴
6. ۴۵۹۵۷۸ — Ans: ۴۵۹۵۷۸
7. ۷۷۸۸۹۹ — Ans: ۷۷۸۸۹۹
8. ۱۷۵۰۶۰ — Ans: ۱۷۵۰۶۰

iii Write the following number in Sindhi style.

1. 959210 — Ans: ۹۵۹۲۱۰
2. 49521 — Ans: ۴۹۵۲۱
3. 386755 — Ans: ۳۸۶۷۵۵
4. 978759 — Ans: ۹۷۸۷۵۹
5. 513929 — Ans: ۵۱۳۹۲۹
6. 3578810 — Ans: ۳۵۷۸۸۱۰
7. 154972 — Ans: ۱۵۴۹۷۲
8. 945921 — Ans: ۹۴۵۹۲۱
9. 193925 — Ans: ۱۹۳۹۲۵
10. 458175 — Ans: ۴۵۸۱۷۵
11. 165979 — Ans: ۱۶۵۹۷۹
12. 959521 — Ans: ۹۵۹۵۲۱

iv Write the following numbers in English Style.

1. ۵۶۷۸۰۹ — Ans: 567809
2. ۷۸۹۰ — Ans: 7890
3. ۱۲۶۷۹ — Ans: 12679
4. ۱۹۴۵۰ — Ans: 19450
5. ۴۴۳۴۷ — Ans: 44347
6. ۸۹۷۶۵ — Ans: 89765
7. ۳۴۵۶۷ — Ans: 34567
8. ۴۵۶۷۸ — Ans: 45678

v Write the following numbers in Roman style.

1. 40 — Ans: XL
2. 69 — Ans: LXIX
3. 26 — Ans: XXVI
4. 79 — Ans: LXXIX
5. 50 — Ans: L
6. 37 — Ans: XXXVII
7. 30 — Ans: XXX
8. 74 — Ans: LXXIV
9. 65 — Ans: LXV
10. 71 — Ans: LXXI
11. 99 — Ans: XCIX
12. 100 — Ans: C

CONCEPT OF FACTORS BY DIVISION:

If a number can divide an other number and remainder is zero the division called factor of greatest common Division.

Example: Divide 256 by 2

Solution **256 ÷ 2**

```
      128
   2 | 256
       2
      ---
       5
       4
      ---
       16
       16
      ---
        0
```

So that 2 can divide 256 and 128 are divisions of 256. If 256 is divided by 3 then remainder is 1.

Solution

```
      85
   3 | 256
       24
      ---
       16
       15
      ---
        1
```

256 can not be divided by 3 because remainder becomes 1 so that we can say that 3 can not divide to 256.

If 256 are divided by 4 them remainder is zero.

$$
\begin{array}{r|l}
 & 64 \\
\hline
4 & 256 \\
 & 24 \\
\hline
 & 16 \\
 & 16 \\
\hline
 & 0
\end{array}
$$

Divide 256 is the remainder is zero.

Example: Find the factors by multiplication **55, 36, 72, 48, 12**

Solution Dividor of 12 are 1, 2, 3, 4, 6, 12

Dividor of 48 are 1, 2, 3, 4, 6, 8, 12, 16, 24, 48

Dividor of 36 are 1, 2, 3, 4, 6, 9, 12, 18, 36

Dividor of 72 are 1, 2, 3, 4, 6, 8, 9, 12, 18, 24, 36, 72

Dividor of 55 are 1, 5, 11, 55

FUNCTION OF DIVISION:

If a number is divided by any number then remainder become zero the number division. The divisor number will be the factor of that number.

DIVISION WITH 2:

If the unit of any number are 0,2,4,6 and 8 then the numbers divisible by 2.

Example: **104, 96, 48, 24, 28, 76, 68, 100** be divisible by **2**.

IMPORTANT INFORMATION

The numbers which are divisible by 2 are called Even number.

The numbers that are divide by 3.

If sum of any numbers can be divided by 3. Then the number is also divided by 3.

Example: Divide 279 by 3

Sum of digits **2 + 7 + 9 = 18**

18 can be divided by 3 so that 279 can be divided by 3.

Example: Which number is divisible by 3.

$$
\begin{array}{r|l}
 & 93 \\
\hline
3 & 279 \\
 & 27 \\
\hline
 & 9 \\
 & 9 \\
\hline
 & 0
\end{array}
$$

Example: Which numbers can be divided by 3.

(i) 3435 (ii) 281 (iii) 45252

Solution (i) 3435 Sum of digits = 15 = 3 + 4 +3 + 5

15 can be divided 3 so that 3435 in also divisible by 3

Solution (ii) 281 Sum of digits = 11 = 2 + 8 + 1

11 can not be divided by 3 so that 281 is not divisible by 3.

Solution (iii) 45252 Sum of digits = 18 = 4 + 5 + 2 + 5 + 2

18 can be divided by 3 so that 45252 can divided by 3.

DIVISIBLE BY 5:

Such number that has units 0 or 5 then that number can be divided by 5.

Example: 110, 105, 100, 90, 55, 50

IMPORTANT INFORMATION:

- The numbers that are divisible by 2 and 3. Then these are divisible by 6.
- If the unit or term of a number is divisible by 4 then number is divisible by 4.
- The number that is divisible by 2 and 5 then it is divisible by 10.
- If the units term or hundreds of any number is divisible by 8 then number is divisible by 8.

EXERCISE 2.1

i Tell the factors of the following.

1. **24**
Ans: 1, 2, 3, 4, 6, 8, 12, 24.

2. **36**
Ans: 1, 2, 3, 4, 6, 9, 12, 18, 36.

3. **48**
Ans: 1, 2, 3, 4, 6, 8, 12, 16, 24, 48.

4. **81**
Ans: 1, 3, 9, 27, 81.

5. **60**
Ans: 1, 2, 3, 4, 5, 6, 10, 12, 15, 20, 30, 60.

6. **75**
Ans: 1, 3, 5, 15, 25, 75

7. **66**
Ans: 1, 2, 3, 6, 11, 22, 33, 66.

8. **69**
Ans: 1, 3, 23, 69

9. **49**
1, 7, 49.

10. **96**
Ans: 1,2,3,4,6,8,12,16,24,32,48,96.

ii Find out the numbers which are divisible by 3.

1. 637 2. 47293 3. 728 4. 157224 5. 45261
6. 8364 7. 728 8. 535 9. 2109 10. 36480
11. 79210 12. 81972 13. 51369 14. 2159 15. 31250

Ans: 4. 157224 5. 45261 6. 8364 9. 2109 10. 36480 12. 81972 13. 51369

The above given numbers are divisible by 3.

iii Separate the number which are divisible by 5.

1. 4510 2. 1993 3. 21595 4. 57721 5. 10005
6. 32759 7. 2450 8. 1986 9. 2093 10. 2125
11. 15190 12. 19953 13. 18102 14. 2150 15. 1000

Ans:

1. 4510 3. 21595 5. 10005 7. 2450
10. 2125 11. 15190 14. 2150 15. 1000

The above number which are divisible by 5.

iv Find the exact of given number in blanks.

	Divisible Numbers	Divisible by 2	Divisible by 3	Divisible by 5
1	15024	7512	5008	-
2	135	-	45	27
3	2736	1368	912	-
4	457120	228560	-	91424
5	48525	-	16175	9705
6	15858	7929	5286	-
7	24480	12240	8160	4896
8	9936	4968	3312	-
9	1008	504	336	-
10	234660	117330	78220	46932
11	1025	-	-	205
12	263	-	-	-
13	99250	49625	-	19850

PRIME AND COMPOSITE NUMBERS:

Prime Numbers:

The number having two divisors (one and itself) are called prime Number.

Example: 1,2,3,5,7,11,13,19....

Composite Numbers

The number whose are more than two divisors are called compound Numbers.

Example: 6,8,9,10,12,15,16,18

Activity:

Separate the prime number and composite number.

Numbers	Prime Number	Compound Number	Number	Prime Number	Compound Number
148	C		231		
490	C		341		
159	P		218		
117	P		129		

FACTORS

The division of any number that are written in form of multiplication are known as factors.

Factors of 30 are:

2	30
3	15
	5

1 × 30
2 × 15
3 × 10
5 × 6
6 × 5

2 × 3 × 5 = 30

MULTIPLICATION OF PRIME FACTORS

If a factor is in the form of multiplication that is called multiplicative Factor.

Example: Find the multiplicative factors of 50.

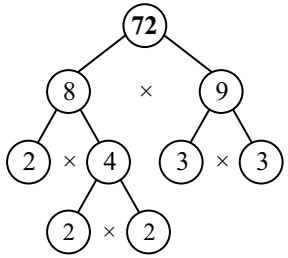
Solution: **2 x 5 x 5 = 50**

2	50
5	25
	5

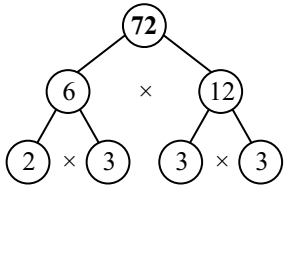
We can prime factor by the process of Division, when we divide any number by prime number if result is composite number then rot is divided by Prime Factor, This process is going on till remainder becomes one.

FACTORS BY FACTOR TREE METHOD

Example: Draw Factor tree of 72



2 × 2 × 2 × 3 × 3 = 72



2 × 3 × 3 × 2 × 2 = 72

EXERCISE 2.2

1 Separate the prime and composite numbers.

	Numbers	Prime number	Composite numbers		Numbers	Prime number	Composite numbers
1	71, 69, 85	71,	85	2	129,131,91	×129,131	91
3	17, 19, 21	17,19	21	4	223,100	223	100
5	12, 171	× 12	171	6	68, 0	0	68
7	21, 484	×21,	484	8	65, 02	02	65
9	510, 33	×510,33	32	10	87, 10	1087	10

ii Find the possible factors of following numbers.

1 **24**

Sol:

2	24
2	12
2	6
3	3
	1

Ans: 2x2x2x3=24

2 **36**

Sol:

2	36
2	18
3	9
3	3
	1

Ans: 2x2x3x3x=36

3 **48**

Sol:

2	48
2	24
2	12
2	6
3	3
	1

Ans: 2x2x2x2x3=48

4 **81**

Sol:

3	81
3	27
3	9
3	3
	1

Ans: 3x3x3x3=81

5 **60**

Sol:

2	60
2	30
3	15
5	5
	1

Ans: 2x2x3x5x=60

6 **75**

Sol:

3	75
5	25
5	5
	1

Ans: 3x5x5=75

7 **596**

Sol:

2	596
2	298
149	149
	1

Ans: 2x2x149=596

8 **315**

Sol:

3	315
3	105
5	35
7	7
	1

Ans: 3x3x5x7=315

9 **400**

Sol:

2	400
2	200
2	100
2	50
5	25
5	5
	1

Ans: 2x2x2x2x5x5=400

10 **124**

Sol:

2	124
2	62
31	31
	1

Ans: 2x2x31=124

11 **692**

Sol:

2	692
2	346
173	173
	1

Ans: 2x2x173=315

12 **720**

Sol:

2	720
2	360
2	180
2	90
3	45
3	15
5	5
	1

Ans: 2x2x2x2x3x3x5=720

13 **121**

Sol:

11	121
11	11
	1

Ans: 11x11=121

14 **819**

Sol:

3	819
3	273
7	91
13	13
	1

Ans: 3x3x7x13=819

15 **33**

Sol:

3	33
11	11
	1

Ans: 3x11=33

iii Find the prime factors of following.

1 **24**

Sol:

2	24
2	12
2	6
3	3
	1

Ans: The prime factors of 24 is 2x2x2x3

2 **36**

Sol:

2	36
2	18
3	9
3	3
	1

Ans: The prime factors of 36 is 2x2x3x3

3 **48**

Sol:

2	48
2	24
2	12
3	6
3	3
	1

Ans: The prime factors of 48 is 2x2x2x3x3

4 **81**

Sol:

3	81
3	27
3	9
3	3
	1

Ans: The prime factors of 81 is 3x3x3x3

5 **60**

Sol:

2	60
2	30
3	15
5	5
	1

Ans: The prime factors of 60 is 2x2x3x5

6 **75**

Sol:

3	75
5	25
5	5
	1

Ans: The prime factors of 75 is 3x5x5

7 **444**

Sol:

2	444
2	222
111	111
	1

Ans: 2 x 2 x 111 = 444

8 **315**

Sol:

3	315
3	105
5	35
7	7
	1

Ans: The prime factors of 315 is 3x3x5x7

9 **96**

Sol:

2	96
2	48
2	24
2	12
2	6
3	3
	1

Ans: The prime factors of 96 is 2x2x2x2x3

10 **212**

Sol:

2	212
2	106
53	53
	1

Ans: The prime factors of 212 is 2x2x53

11 **35**

Sol:

5	35
7	7
	1

Ans: The prime factors of 35 is 5x7

12 **10**

Sol:

2	10
5	5
	1

Ans: The prime factors of 10 is 2x5

13 **84**

Sol:

2	84
2	42
3	21
7	7
	1

Ans: The prime factors of 84 is 2x2x3x7

14 **40**

Sol:

2	40
2	20
2	10
5	5
	1

Ans: The prime factors of 40 is 2x2x2x5

15 **55**

Sol:

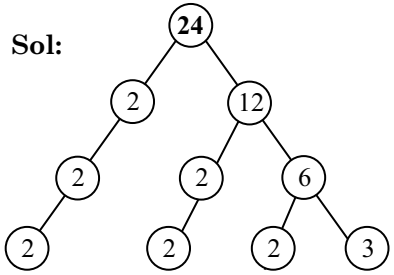
5	55
11	11
	1

Ans: The prime factors of 55 is 5x11

iv Draw factor tree of following numbers.

1 **24**

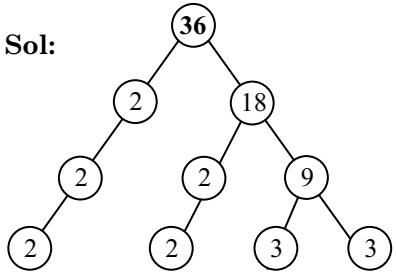
Sol:



Ans: 2x2x2x3=24

2 **36**

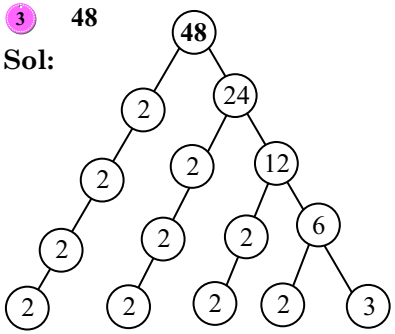
Sol:



Ans: 2x2x3x3=36

3 **48**

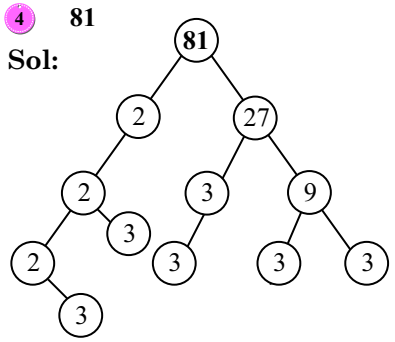
Sol:



Ans: 2x2x2x2x3=48

4 **81**

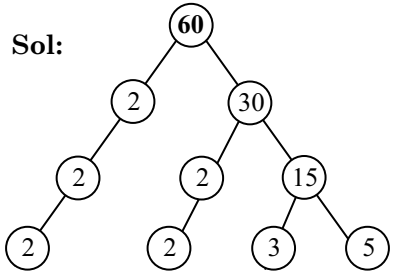
Sol:



Ans: 3x3x3x3=81

5 **60**

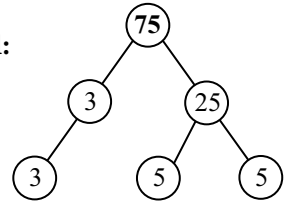
Sol:



Ans: 2x2x3x5=60

6 **75**

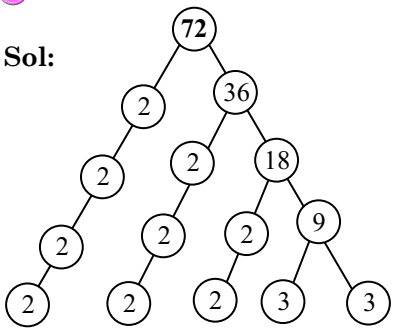
Sol:



Ans: 3x5x5=75

7 **72**

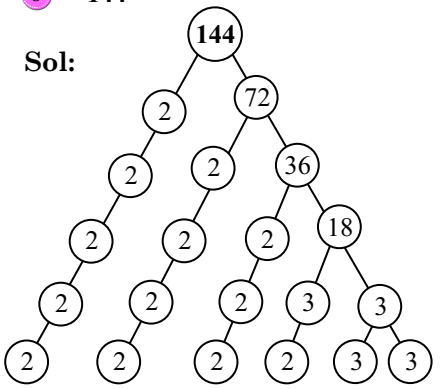
Sol:



Ans: 2x2x2x2x3x3=72

8 **144**

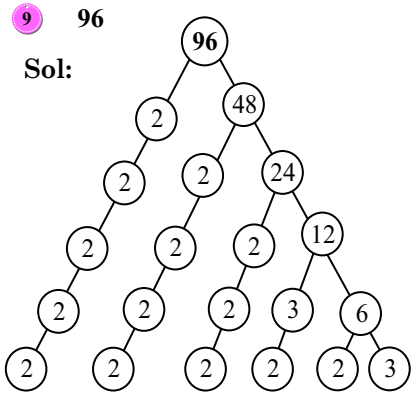
Sol:



Ans: 2x2x2x2x3x3=144

9 **96**

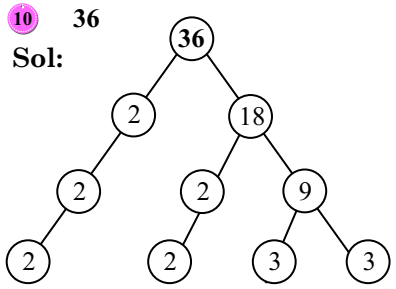
Sol:



Ans: 2x2x2x2x2x3=96

10 **36**

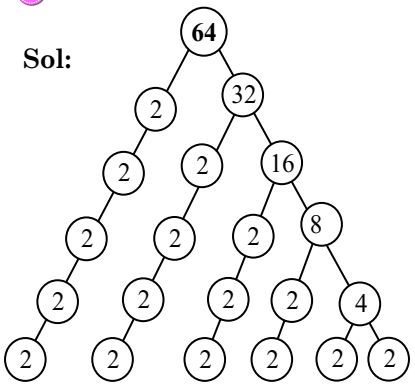
Sol:



Ans: 2x2x3x3=36

11 **64**

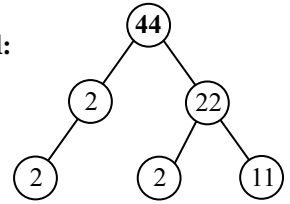
Sol:



Ans: 2x2x2x2x2x2=64

12 **44**

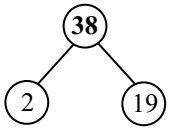
Sol:



Ans: 2x2x11=44

13 **38**

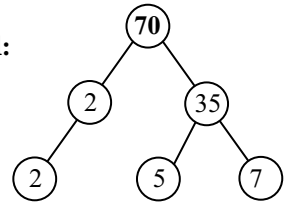
Sol:



Ans: 2x19=38

14 **70**

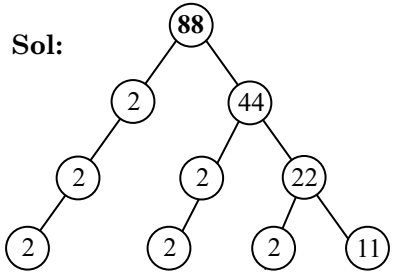
Sol:



Ans: 2x5x7=70

15 **88**

Sol:



Ans: 2x2x2x11=88

COMPOUND DIVISIONS

Watch the Division of 72 and 81

Divisors of **81** = 1 , 3 , 9 , 27 , 81

Divisors of **72** = 1 , 2 , 3 , 4 , 6 , 8 , 9 , 12 , 18 , 24 , 36 , 72

Composite Divisors = 3 , 9

Greatest common Division

Example: Find composite factor of 48 and 36

Divisors of **36** = 1 , 2 , 3 , 4 , 6 , 9 , 12 , 81 , 36

Divisors of **72** = 1 , 2 , 3 , 4 , 6 , 8 , 12 , 16 , 24 , 48

Composite divisor = 2, 3, 4, 6, 12

The number that can divide completely to given number is called greatest common divisors or is also called highest common factor.

Example: Find G.C.D GCF of **60** and **72**

Factors of **60** = 1 , 2 , 3 , 4 , 5 , 6 , 10 , 12 , 15 , 20 , 30 , 60

Factors of **72** = 1 , 2 , 3 , 4 , 6 , 8 , 9 , 12 , 18 , 24 , 36 , 72

Common Factors of both = 1, 2, 3, 4, 6, 12

Highest common factor = 12

Example: Find G.C.D or HCF of 21 and 63

Factors of **21** = 1 , 3 , 7 , 21

Factors of **63** = 1 , 3 , 7 , 9 , 21 , 63

Common Factors of both = 1, 3, 7, 21

Highest common factor = 21

GREATEST COMMON DIVISIONER BY FACTORIZATION

Example: Find G.C.D HCF by 60 and 105 by factorization

Factors of **105** = 3 × 5 × 7

Factors of **60** = 2 × 2 × 3 × 5

Common Factors of both = 3 × 5

Highest common factor = 15

2	60
2	30
3	15
5	5
	1

3	105
5	35
7	7
	1

EXERCISE 2.3

Find GCD by prime factors.

1 **30 , 90**

Sol:

2 | 30
3 | 15
5 | 5
1

2 | 90
3 | 45
3 | 15
5 | 5
1

Factors of 30 = 2x3x5
Factors of 90 = 2x3x3x5
The common factars of both = 2x3x5 = 30
Ans: The GCD of 30 and 90 is 30.

2 **75 , 125**

Sol:

3 | 75
5 | 25
5 | 5
1

5 | 125
5 | 25
5 | 5
1

Factors of 75 = 3x5x5
Factors of 125 = 5x5x5
The common factars of both = 5 x 5
Ans: The GCD of 75 and 125 is 25.

3 20 , 35 , 45

Sol:

2 | 20
2 | 10
5 | 5
1

5 | 35
7 | 7
1

3 | 45
3 | 15
5 | 5
1

Factors of 20 = 2x2x5
Factors of 35 = 5x7
Factors of 45 = 3x3x5
The common factors of 20, 35 and 45 is 5.
Ans: The GCD of 20, 35 and 45 is 5.

4 40 , 25 , 75

Sol:

2 | 40
2 | 20
2 | 10
5 | 5
1

5 | 25
5 | 5
1

3 | 75
5 | 25
5 | 5
1

Factors of 40 = 2x2x2x5
Factors of 25 = 5x5
Factors of 75 = 3x5x5
The common factors of 40, 25 and 75 is 5.
Ans: The GCD of 40, 25 and 75 is 5.

5 **48 , 72**

2 | 48
2 | 24
2 | 12
3 | 6
3 | 3
1

2 | 72
2 | 36
2 | 18
3 | 9
3 | 3
1

Factors of 48 = 2x2x2x2x3
Factors of 72 = 2x2x2x3x3
The common factors of both. 2x2x2x3 = 24
Ans: The GCD of 48, and 72 is 24.

6 **33 , 44 , 55**

3 | 33
11 | 11
1

2 | 44
2 | 22
11 | 11
1

5 | 55
11 | 11
1

Factors of 33 = 3x11
Factors of 44 = 2x2x11
Factors of 55 = 5x11
The common factors of 33, 44 and 55 is 11.
Ans: The GCD of 33, 44 and 55 is 11.

7 **28 , 42 , 21**

2 | 28
2 | 14
7 | 7
1

2 | 42
3 | 21
7 | 7
1

3 | 21
7 | 7
1

Factors of 40 = 2x2x7
Factors of 25 = 2x3x7
Factors of 75 = 3x7
The common factors of 28, 42 and 21 is 7.
Ans: The GCD of 28, 42 and 21 is 7.

8 **36 , 48**

2 | 36
2 | 18
3 | 9
3 | 3
1

2 | 48
2 | 24
2 | 12
2 | 6
3 | 3
1

Factors of 36 = 2x2x3x3
Factors of 48 = 2x2x2x2x3
The common factors of both is 2x2x3 =12
Ans: The GCD of 36 and 48 is12.

9 **120 , 96**

2 | 120
2 | 60
2 | 30
3 | 15
5 | 5
1

2 | 96
2 | 48
2 | 24
2 | 12
2 | 6
3 | 3
1

Factors of 36 = 2x2x2x3x5
Factors of 48 = 2x2x2x2x2x3
The common factors of both is 2x2x2x3 =24
Ans: The GCD of 120 and 96 is 24

10 **99 , 81**

3 | 99
3 | 33
11 | 11
1

3 | 81
3 | 27
3 | 9
3 | 3
1

Factors of 99 = 2x2x11
Factors of 81 = 3x3x3x3
The common factors of both is 3x3 =9
Ans: The GCD of 99 and 81 is 9.

11 **24 , 96**

2 | 24
2 | 12
2 | 6
3 | 3
1

2 | 96
2 | 48
2 | 24
2 | 12
2 | 6
3 | 3
1

Factors of 24 = 2x2x2x3
Factors of 96 = 2x2x2x2x2x3
The common factors of both is 2x2x2x3 =24
Ans: The GCD of 24 and 96 is 24.

12 **33 , 99 , 121**

3 | 33
11 | 11
1

3 | 99
3 | 33
11 | 11
1

11 | 121
11 | 11
1

Factors of 33 = 3x11
Factors of 99 = 3x3x11
Factors of 121 = 11x11
The common factors of 33, 99 and 121 is 11.
Ans: The GCD of 33, 99 and 121 is 11.

13 **105, 60, 60**

Sol:

3 | 105
5 | 35
7 | 7
1

2 | 60
2 | 30
3 | 15
5 | 5
1

2 | 60
2 | 30
3 | 15
5 | 5
1

Factors of 105 = 3x5x7
Factors of 60 = 2x2x3x5
Factors of 60 = 2x2x3x5
The common factors of 105, 60 and 60 is 15.
Ans: The GCD of 105, 60 and 60 is15.

14 **21, 63**

Sol:

3 | 21
7 | 7
1

3 | 63
3 | 21
7 | 7
1

Factors of 21 = 3x7
Factors of 63 = 2x3x7
The common factors of 21 and 63 is 3x7 = 21
Ans: The GCD of 21, and 63 is 21.

15 **40, 30, 20**

Sol:

2 | 40
2 | 20
2 | 10
5 | 5
1

2 | 20
3 | 15
5 | 5
1

2 | 20
2 | 10
5 | 5
1

Factors of 40 = 2x2x2x5
Factors of 30 = 2x3x5
Factors of 20= 2x2x5
The common factors of 40, 30 and 20 is 10.
Ans: The GCD of 40, 30 and 20 is 10

16 **25, 125**

Sol:

5 | 25
5 | 5
1

5 | 125
5 | 25
5 | 5
1

Factors of 25 = 5x5
Factors of 125 = 5x5x5
The common factors of both is 5x5 = 25
Ans: The GCD of 25, and 125 is 25.

17 **12, 144**

Sol:

2 | 12
2 | 6
3 | 3
1

2 | 144
2 | 72
2 | 36
2 | 18
3 | 9
3 | 3
1

Factors of 12 = 2x2x3
Factors of 125 = 2x2x2x2x3x3
The common factors of both is 2x2x3 = 12
Ans: The GCD of 12, and 144 is 12.

18 **35, 105**

Sol:

5 | 35
7 | 7
1

3 | 105
5 | 35
7 | 7
1

Factors of 35 = 5x7
Factors of 105 = 3x5x3
The common factors of 35 and105 is 5x7 = 35
Ans: The GCD of 352, and 105 is 35.

19 **27, 81**

Sol:

3 | 27
3 | 9
3 | 3
1

3 | 81
3 | 27
3 | 9
3 | 3
1

Factors of 27 = 3x3x3
Factors of 81 = 3x3x3x3
The common factors of 27 and 81 is 3x3x3 = 27
Ans: The GCD of 27, and 81 is 27.

20 **17, 34, 51**

Sol:

17 | 17
1

2 | 34
17 | 17
1

3 | 51
17 | 17
1

Factors of 17 = 17x1
Factors of 34 = 2x17
Factors of 51 = 3x17
The common factors of 17, 34 and 51 is 17.
Ans: The GCD of 17, 34 and 51 is 17.

GREATEST COMMON DIVISIONER BY DIVISION METHOD

In division method in the first we divide greatest number by least number if remainder is not zero Then remainder is divided by first division when remainder becomes zero then that divisionor is called greatest common divisionor.

Example Find G.C.D of 240, 144 and 192 by division method.

```
        3
  48 | 144
       144
       ---
         0
```

```
          1
  192 | 240
        192   4
        ---  ---
         48 | 192
              192
              ---
                0
```

G.C.D is 48.

Example: Find G.C.D of 216, 108 and 162

```
        2
  54 | 108
       108
       ---
         0
```

```
          1
  162 | 216
        162   2
        ---  ---
         54 | 162
              108   1
              ---  ---
               54 | 54
                    54
                    --
                     0
```

EXERCISE 2.4

Find G.C.D by division method.

1 **98, 196, 147**

Sol:

```
          1
  98 | 147
       -98   2
       ---  ---
        49 | 98
             -98
             ---
              00
```

```
          4
  49 | 196
       -196
       ----
        000
```

Ans: The G.C.D of 98,196 and 147 is 49

2 **120, 300**

Sol:

```
          2
  120 | 300
        -240   2
        ----  ---
          60 | 120
               -120
               ----
                000
```

Ans: The G.C.D of 120 and 300 is 60.

3 **57, 95, 114**

```
      1
57 ) 95
    -57   1
     38 ) 57
         -38   2
          19 ) 38
              -38
               00

      5
19 ) 114
     -95   1
      19 ) 19
          -19
           00
```

Ans: The G.C.D of 57, 95 and 114 is 19.

4 **39, 65, 13**

Sol:

```
      3
13 ) 39
    -39
     00

      5
13 ) 65
    -65
     00
```

Ans: The G.C.D of 39, 65 and 13 is 13.

5 **63, 117, 153**

```
      1
63 ) 117
     -63   1
      54 ) 63
          -54   6
            9 ) 54
                54
                00

     1
9 ) 153
    -9    7
    19 ) 63
        -63
         00
```

Ans: The G.C.D of 63, 117 and 153 is 9.

6 **120, 96, 72**

```
      1
72 ) 96
    -72   1
     24 ) 24
         -24
          00

      5
24 ) 120
    -120
     000
```

Ans: The G.C.D of 120, 96 and 72 is 24.

7 **48, 96, 144**

```
      2
48 ) 96
    -96
     00

      3
48 ) 144
    -144
     000
```

Ans: The G.C.D of 48, 96 and 144 is 24.

8 **72, 24**

```
      3
24 ) 72
    -72
     00
```

Ans: The G.C.D of 72 and 24 is 24.

9 **234, 198, 126**

```
       1
126 ) 198
     -126   1
       72 ) 126
            -72   1
             54 ) 72
                 -54   3
                  18 ) 54
                       54
                       00

      1
18 ) 234
     -18
      54
     -54
      00
```

Ans: The G.C.D of 234, 198 and 126 is 18.

10 **72, 180, 36**

Sol:

```
      2
36 | 72
    -72
     00
```

```
      5
36 | 180
    -180
     000
```

Ans: The G.C.D of 72,180,63 is 36.

11 **35 , 65 , 85**

Sol:

```
      1
35 | 65
    -35   2
     30 | 35
        -30   6
          5 | 30
              30
               00
```

```
      17
5 | 85
     -5
     35
    -35
     00
```

Ans: The G.C.D of 35, 65 and 85 is 35.

12 **21 , 49 , 63**

Sol:

```
      2
21 | 49
    -42   3
     7 | 21
        -21
         00
```

```
      9
7 | 63
    -63
     00
```

Ans: The G.C.D of 21, 49 and 63 is 7

13 **300, 120**

Sol:

```
        2
120 | 300
    -240   2
      60 | 120
          -120
           000
```

Ans: The G.C.D of 300, 120 is 60.

14 **24, 72**

Sol:

```
      3
24 | 72
    -72
     00
```

```
      1
24 | 24
    -24
     00
```

Ans: The G.C.D of 24 and 72 is 24.

15 **121, 11**

Sol:

```
      11
11 | 121
    -120
     000
```

Ans: The G.C.D of 121 and 11 is 11.

16 **48, 144, 96**

Sol:

```
      2
48 | 96
    -96
     00
```

```
      3
48 | 144
    -144
     000
```

Ans: The G.C.D of 48, 144 and 96 is 48.

17 **153, 177, 63**

```
          2
   63 | 153
        -126   2
         27 | 63
             -54   3
               9 | 27
                   -27
                    00
```

```
      19
  9 | 171
      -9
       81
      -81
       00
```

Ans: The G.C.D of 153, 171 and 63 is 9.

18 **147, 196, 98**

Sol:

```
          1
   98 | 147
         -98   2
          49 | 98
               -98
                00
```

```
       4
  49 | 196
      -196
       000
```

Ans: The G.C.D of 147, 196 and 98 is 49.

19 **114, 57, 95**

```
          1
   57 | 95
        -57   1
         38 | 57
             -38   2
              19 | 38
                   -38
                    00
```

```
       6
  19 | 114
      -114
       000
```

Ans: The G.C.D of 114, 57 and 95 is19.

20 **192, 144, 246**

Sol:

```
          1
  144 | 192
        -144   2
          48 | 144
              -144
               000
```

```
       6
  48 | 288
      -288
       000
```

Ans: The G.C.D of 192, 144 and 246 is 48.

21 **108, 162**

Sol:

```
          1
  108 | 162
        -108   2
          54 | 108
              -108
               000
```

Ans: The G.C.D of 108 and 162 is 54.

22 **72, 96**

Sol:

```
          1
   72 | 96
        -72   3
         24 | 72
              -72
               00
```

Ans: The G.C.D of 72 and 96 is 24.

23 **21, 49**

Sol:

```
          2
   21 | 49
        -42   3
          7 | 21
              -21
               00
```

Ans: The G.C.D of 21 and 49 is 7.

24 **13, 39**

Sol:

```
       3
  13 | 39
       -39
        00
```

Ans: The G.C.D of13 and 39 is 13.

FIND LEAST COMMON MULTIPLE

The number that is divisible by given number is called least common Multiple.

Multiple = L.C.M of **3** = 3,6,9,12,15,18,21,24,27,30,33,36,39,42,45

Multiple = L.C.M of **4** = 4,8,12,16,20,24,28,32,36,40,44,48,52,56,60

Multiple L.C.M of **5** = 5,10,15,20,25,30,35,40,45,50,55,60,65,70,75

LEAST COMMON MULTIPLICATION

Least common multiplication is a number whose two or more than two common divisionor.

Example: Find L.C.M of 4 and 8

Multiple L.C.M of 4 : 4 , 8 , 12 , 16 , 20 , 24 , 28 , 32 , 36 , 40 ,.....

Multiple L.C.M of 8 : 8 , 16 , 24 , 32 , 40 , 48 , 56 , 64 , 72 , 80 ,....

L.C.M of 4 and 8 : 8, 16, 24, 32, 40

: 8

: 8

LEAST COMMON MULTIPLE BY FACTORIZATION

The separate factors of any number are called multiple factors when same and different factors are multiplied then the result is called least common Multiple.

Example: Find L.C.M of 24 and 36 by factorization.

$24 = 2 \times 2 \times 2 \times 3$

$36 = 2 \times 2 \times 3 \times 3$

2 | 24
2 | 12
2 | 6
3 | 3
| 1

2 | 36
2 | 18
3 | 9
3 | 3
| 1

Same factors = $2 \times 2 \times 3$

Different factors = 2×3

Same and different factors = $2 \times 2 \times 3 \times 2 \times 3$

L.C.M = 72

EXERCISE 2.5

Find L.C.M by factorization

1 **10, 20, 30**

Sol:

2 | 10 , 20 , 30
2 | 5 , 10 , 15
3 | 5 , 5 , 15
5 | 5 , 5 , 5
| 1 , 1 , 1

Ans: The L.C.M of 10,20 and 30 is 2x2x3x5
=60

2 **20, 25, 45**

Sol:

2 | 20 , 25 , 45
2 | 10 , 25 , 45
3 | 5 , 25 , 45
3 | 5 , 25 , 15
5 | 5 , 25 , 5
5 | 1 , 5 , 1
| 1 , 1 , 1

Ans: The L.C.M of 20,25 and 45 is 2x2x3x3x5x5
=900

3 **24, 36, 48**

Sol:

2 | 22 , 36 , 48
2 | 12 , 18 , 24
2 | 6 , 9 , 12
2 | 3 , 9 , 6
3 | 3 , 9 , 3
3 | 1 , 3 , 1
| 1 , 1 , 1

Ans: The L.C.M of 24,36 and 48 is 2x2x2x2x3x3
=144

4 **32, 64**

Sol:

2 | 32 , 64
2 | 16 , 32
2 | 8 , 16
2 | 4 , 8
2 | 2 , 4
2 | 1 , 2
| 1 , 1

Ans: The L.C.M of 32 and 64 is 2x2x2x2x2x2
=64

5 **26, 39, 91**

Sol:

2 | 26 , 39 , 91
3 | 13 , 39 , 91
7 | 13 , 13 , 91
13 | 13 , 13 , 13
| 1 , 1 , 1

Ans: The L.C.M of 26,39 and 91 is 2x3x7x13
=546

6 **11, 22, 33**

Sol:

2 | 11 , 22 , 23
11 | 11 , 11 , 23
23 | 1 , 1 , 23
| 1 , 1 , 1

Ans: The L.C.M of 11,22 and 23 is 2x11x23
=506

7 **24, 40**

Sol:

2	24 , 40
2	12 , 20
2	6 , 10
3	3 , 5
5	1 , 5
	1 , 1

Ans: The L.C.M of 24 and 40 is
2x2x2x3x5
=120

8 **15, 25, 35**

Sol:

3	15 , 25 , 35
5	5 , 25 , 35
5	1 , 5 , 7
7	1 , 1 , 7
	1 , 1 , 1

Ans: The L.C.M of 15,25 and 35 is
3x5x5x7
=525

9 **16, 32, 48**

Sol:

2	16 , 32 , 48
2	8 , 16 , 24
2	4 , 8 , 12
2	2 , 4 , 6
2	1 , 2 , 3
3	1 , 1 , 3
	1 , 1 , 1

Ans: The L.C.M of 16,32 and 48 is
2x2x2x2x2x3
=96

10 **11, 22, 44**

Sol:

2	11 , 22 , 44
2	11 , 11 , 22
11	11 , 11 , 11
	1 , 1 , 1

Ans: The L.C.M of 11, 22 and 44 is
2x2x11
=44

11 **14, 28, 98**

Sol:

2	14 , 28 , 98
2	7 , 14 , 49
7	7 , 7 , 49
7	1 , 1 , 7
	1 , 1 , 1

Ans: The L.C.M of 14,28 and 98 is
2x2x7x7
=196

12 **24, 72, 108**

Sol:

2	24 , 72 , 108
2	12 , 36 , 54
2	6 , 18 , 27
3	3 , 9 , 9
3	1 , 3 , 9
3	1 , 1 , 3
	1 , 1 , 1

Ans: The L.C.M of 24, 72 and 108 is
2x2x2x3x3x3
=216

13 **15, 30, 105**

Sol:

2	24 , 40
2	12 , 20
2	6 , 10
3	3 , 5
5	1 , 5
	1 , 1

Ans: The L.C.M of 24 and 40 is
2x2x2x3x5
=120

14 **72, 81**

Sol:

2	72 , 81
2	36 , 81
2	18 , 81
3	9 , 81
3	3 , 27
3	1 , 9
3	1 , 3
	1 , 1

Ans: The L.C.M of 72 and 81 is
2x2x2x3x3x3x3
=648

15 **24, 48**

Sol:

2	24 , 48
2	12 , 24
2	6 , 12
2	3 , 6
3	3 , 3
	1 , 1

Ans: The L.C.M of 24 and 48 is
2x2x2x2x3
=48

16 **15, 45, 120**

Sol:

2	15 , 45 , 120
2	15 , 45 , 60
2	15 , 45 , 30
3	15 , 45 , 15
3	5 , 15 , 5
5	5 , 5 , 5
	1 , 1 , 1

Ans: The L.C.M of 15, 45 and 120 is
2x2x2x3x3x5
=360

Least common multiple by division method

Least common multiple by division method of multiplication in, when all given numbers are factorized in slap there any number that divide any one a two number Then the third is divided by next number, and factors become same and different.

IMPORTANT INFORMATION

When any number has not divisor a number it place down in same position.

Example: Find least common multiple by 96, 256 and 128 by factorization.

Solution:

Factors $2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 3$ =

L.C.M = **768**

2	96 , 256 , 128
2	48 , 128 , 64
2	24 , 64 , 32
2	12 , 32 , 16
2	6 , 16 , 8
2	3 , 8 , 4
2	3 , 4 , 2
2	3 , 2 , 1
3	3 , 1 , 1
	1 , 1 , 1

Example: Find least common multiple of 42, 28 and 56 by factorization.

Solution

Factors = $2 \times 2 \times 7 \times 3 \times 2$

L.C.M = 168

2	42 , 28 , 56
2	21 , 14 , 28
7	21 , 7 , 14
3	3 , 1 , 2
2	1 , 1 , 2
	1 , 1 , 1

EXERCISE 2.6

Find least common multiple by factorization.

1 **12, 36, 42**

Sol:

2	12 , 36 , 42
2	6 , 18 , 21
3	3 , 9 , 21
3	1 , 3 , 7
7	1 , 1 , 7
	1 , 1 , 1

2x2x3x3x7
=252

2 **25, 40, 90**

Sol:

2	25 , 40 , 90
2	25 , 20 , 45
2	25 , 10 , 45
3	25 , 5 ,45
3	25 , 5 , 15
5	5 , 1 , 5
5	1 , 1 , 1
	1 , 1 , 1

Ans: The L.C.M of 25, 40 and 90 is
2x2x2x3x3x5x5
=1800

3 **27, 63, 99**

Sol:

3	27 , 63 , 99
3	9 , 21 , 33
3	3 , 7 , 11
7	1 , 7 , 11
11	1 , 1 , 11
	1 , 1 , 1

Ans: The L.C.M of 27, 63 and 99 is
3x3x3x7x11
=2079

4 **24, 48, 72**

Sol:

2	24 , 48 , 72
2	12 , 24 ,36
2	6 , 12 , 18
2	3 , 6 , 9
3	3 , 3 , 9
3	1 , 1 , 3
	1 , 1 , 1

Ans: The L.C.M of 24, 48 and 72 is
2x2x2x2x3x3
=144

5 **28, 42, 56**

Sol:

2	28 , 42 , 56
2	14 , 21 , 28
2	7 , 21 , 14
3	7 , 21 , 7
7	7 , 7 , 7
	1 , 1 , 1

Ans: The L.C.M of 28, 42 and 56 is
2x2x2x3x5x7
=168

6 **54 ,60, 80**

Sol:

2	54 , 60 , 80
2	27 , 30 , 40
2	27 , 15 , 20
2	27 , 15 , 10
3	27 , 15 , 5
3	9 , 5 , 5
3	9 , 5 , 5
5	1 , 5 , 5
	1 , 1 , 1

Ans: The L.C.M of 54, 60 and 80 is
2x2x2x2x3x3x5
=160

7 **24, 36, 60**

Sol:

2	24 , 36 , 60
2	12 , 18 , 30
2	6 , 9 , 15
2	3 , 9 , 15
3	3 , 9 , 15
3	1 , 3 , 15
5	1 , 1 , 5
	1 , 1 , 1

Ans: The L.C.M of 24, 36 and 60 is
2x2x2x2x3x3x5
=720

8 **34 , 51, 85**

Sol:

2	34 , 51 , 85
3	17 , 51 , 85
5	17 , 17 , 85
17	17 , 17 ,17
	1 , 1 , 1

Ans: The L.C.M of 34, 51 and 85 is
2x3x5x17
=510

9 **105, 135, 150**

Sol:

2	105 , 135 , 150
3	105 , 135 , 75
3	35 , 45 , 25
3	35 , 15 , 25
5	35 , 5 , 25
5	35 , 1 , 5
7	7 , 1 , 1
	1 , 1 , 1

Ans: The L.C.M of 105, 135 and 150 is
2x3x3x3x5x5x5
=9450

10 **60, 45, 81**

Sol:

2	60 , 45 , 81
2	30 , 45 , 81
3	15 , 45 , 81
3	5 , 15 , 27
3	5 , 5 , 9
3	5 , 5 , 3
5	5 , 5 , 1
	1 , 1 , 1

Ans: The L.C.M of 60, 45 and 80 is
2x2x3x3x3x3x5
=1620

11 **19, 76**

Sol:

2	19 , 70
2	19 , 38
19	19 , 19
	1 , 1

Ans: The L.C.M of 19 and 76 is
2x2x19
=76

12 **20, 60, 80**

Sol:

2	20 , 60 , 80
2	10 , 30 , 40
2	10 , 15 , 20
2	5 , 15 ,10
3	5 , 15 , 5
5	5 , 5 , 5
	1 , 1 , 1

Ans: The L.C.M of 20, 60 and 80 is
2x2x2x2x3x5
=240

13 **65, 52, 104**

Sol:

2	65 , 52 , 104
2	65 , 26 , 52
2	65 , 13 , 26
5	65 , 13 , 26
13	13 , 13 , 13
	1 , 1 , 1

Ans: The L.C.M of 65, 52 and 104 is
2x2x2x5x13
=520

14 **22, 44, 66**

Sol:

2	22 , 44 , 66
2	11 , 22 , 33
3	11 , 11 , 33
11	11 , 11 ,11
	1 , 1 , 1

Ans: The L.C.M of 22, 44 and 66 is
2x2x3x11
=132

15 **48, 72, 156**

Sol:

2	48 , 75 , 156
2	24 , 36 , 78
2	12 , 18 , 39
2	6 , 9 , 39
3	3 , 9 , 39
3	1 , 3 , 13
13	1 , 1 , 13
	1 , 1 , 1

Ans: The L.C.M of 48, 75 and 156 is
2x2x2x2x3x3x13
=1872

16 **25, 50, 75**

Sol:

2	25 , 50 , 75
3	25 , 25 , 75
5	25 , 25 , 25
5	5 , 5 , 5
	1 , 1 , 1

Ans: The L.C.M of 25, 50 and 75 is
2x3x5x5
=150

17 **35 , 25, 20**

Sol:

2	35 , 25 , 20
2	35 , 25 , 10
5	35 , 25 , 5
5	7 , 5 , 1
7	7 , 1 , 1
	1 , 1 , 1

Ans: The L.C.M of 35, 25 and 20 is
2x2x5x5x7
=700

18 **24, 96**

Sol:

2	24 , 96
2	12 , 48
2	6 , 24
2	3 , 12
2	3 , 6
3	3 , 3
	1 , 1

Ans: The L.C.M of 24 and 96 is
2x2x2x2x2x3
=96

19 **65, 70**

Sol:

2	65 , 70
5	65 , 35
7	13 , 7
13	13 , 1
	1 , 1

Ans: The L.C.M of 65 and 70 is
2x5x7x13
=910

20 **50, 80, 125**

Sol:

2	50 , 80 , 125
2	25 , 40 , 125
2	25 , 20 , 125
2	25 , 10 , 125
5	25 , 5 , 125
5	5 , 1 , 25
5	1 , 1 , 5
	1 , 1 , 1

Ans: The L.C.M of 50, 80 and 125 is
2x2x2x2x5x5x5
=2000

21 **40, 80, 68**

Sol:

2	40 , 80 , 68
2	20 , 40 , 34
2	10 , 20 , 17
2	5 , 10 , 17
5	5 , 5 , 17
17	1 , 1 , 17
	1 , 1 , 1

Ans: The L.C.M of 40, 80 and 68 is
2x2x2x2x5x17
=1360

QUESTIONS ABOUT DAILY LIFE

Example: Find least number which can be divided 6,12,24

Solution:

Factors = $2 \times 2 \times 2 \times 2 \times 3$

L.C.M = 48

2	24 , 12 , 6
2	12 , 6 , 3
2	6 , 3 , 1
2	2 , 3 , 1
3	1 , 3 , 1
	1 , 1 , 1

EXERCISE 2.7

1 Find the L.C.M that could be divided by 8, 16 and 24.

Sol:

2	8 , 16 , 24
2	4 , 8 , 12
2	2 , 4 , 6
2	1 , 2 , 3
3	1 , 1 , 3
	1 , 1 , 1

Ans: 2x2x2x2x3 = 48

2 Find the least number of mangoes which could be distributed in 13 girls, 26 boys and 39 women.

Sol:

2	13 , 26 , 39
3	13 , 13 , 39
13	13 , 13 , 13
	1 , 1 , 1

Ans: 2x3x13 = 78

3 Find the greatest number which could be divide to 35, 42 and 36 completely.

Sol:

5	35
7	7
	1

2	42
3	21
7	7
	1

2	36
2	18
3	9
3	3
	1

Factors of 35 = 5x7x1
Factors of 42 = 2x3x7x1
factors of 36 = 2x2x3x3x1

Ans: The greatest numbers which could be divided to 35, 42 and 36 completely is 1.

4 Find the greatest number of oranges which can be divided in 36,48,72 boys.

Sol:

2	36 , 48 , 72
2	18 , 24 , 36
3	9 , 12 , 12
	3 , 4 , 4

Ans: 2x2x3 = 12

5 Find the greatest number that could be divided in 270, 351, 63 children completely.

Sol:

3	270 , 351 , 63
3	90 , 117 , 21
	30 , 39 , 7

Ans: 3x3 = 9

6 Find the L.C.M which could be divided by 7,21 and 49.

Sol:

3	7 , 21 , 49
7	7 , 7 , 49
7	1 , 1 , 7
	1 , 1 , 1

Ans: 3x7x7 = 147

7 Find L.C.M of apples which could be divided in 15 men, 60 women and 185 children.

Sol:

2	15 , 60 , 185
2	15 , 30 , 185
3	15 , 15 , 185
5	5 , 5 , 185
37	1 , 1 , 37
	1 , 1 , 1

Ans: 2x2x3x5x37 = 2220

8 Find the greatest number that could divided to 72, 144 and 288.

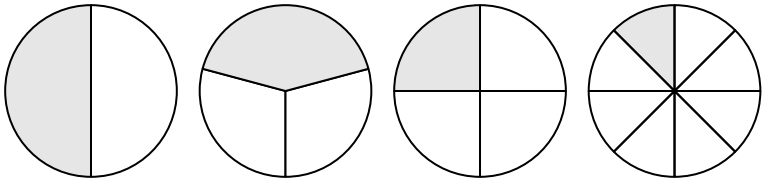
Sol:

2	72 , 144 , 288
2	36 , 72 , 144
2	18 , 36 , 72
3	9 , 18 , 36
3	3 , 6 , 12
	1 , 2 , 4

Ans: 2x2x2x3x3 = 72

COMMON FRACTION

When a complete thing is divided into parts then each part is called its fraction Part.



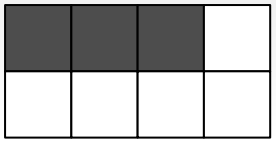
$\frac{1}{2}$ $\frac{1}{3}$ $\frac{1}{4}$ $\frac{1}{8}$

IMPORTANT INFORMATION

- Every fraction has two parts. Which are separated by bar.
- The upper portion bar is called nominator and lower part of Bar is called Denominator.

Nominator ⟶ 3

Denominator ⟶ 8



Example: separate the Nominators of given fractions.

$\frac{9}{11}$, $\frac{11}{19}$, $\frac{2}{10}$, $\frac{15}{21}$, $\frac{4}{9}$, $\frac{3}{4}$, $\frac{19}{20}$, $\frac{18}{9}$, $\frac{21}{25}$, $\frac{37}{45}$

9, 11, 2, 15, 4, 3, 19, 18, 21, 37

INVERSE FRACTION

Such fraction whose Nominator is greater then that of Denominator is called Inverse fraction.

Example $\frac{2}{5}$, $\frac{3}{7}$, $\frac{9}{21}$, $\frac{1}{8}$, $\frac{2}{6}$

DIRECT FRACTION

Such fraction where Nominator is lesser than that of Denominator is called direct fraction. OR proper fraction.

Example: $\frac{2}{3}$, $\frac{10}{5}$, $\frac{18}{12}$, $\frac{20}{15}$, $\frac{4}{3}$

COMPOUND FRACTION

Such fraction whose a part is complete number and other is direct fraction is called compound fraction.

Example: $1\frac{3}{5}$, $2\frac{11}{21}$, $1\frac{1}{3}$, $2\frac{15}{19}$, $1\frac{63}{240}$

EXERCISE 3.1

i Separate the Nominators of given the fractions.

1. $\frac{9}{12}$, 2. $\frac{15}{23}$, 3. $\frac{1}{6}$, 4. $\frac{7}{9}$, 5. $\frac{11}{12}$, 6. $\frac{4}{4}$, 7. $\frac{3}{7}$,
8. $\frac{8}{18}$, 9. $\frac{21}{14}$, 10. $\frac{35}{49}$, 11. $\frac{9}{10}$, 12. $\frac{13}{17}$, 13. $\frac{7}{5}$, 14. $\frac{2}{9}$

Ans:

S.N:	NOMINATORS	DENOMINATORS
1	9	12
2	15	23
3	1	6
4	7	9
5	11	12
6	4	4
7	3	7
8	8	18
9	21	14
10	35	49
11	9	10
12	13	17
13	7	5
14	2	9

ii Separate the direct fractions and inverse fractions.

1. $\frac{4}{6}$, 2. $\frac{3}{7}$, 3. $\frac{15}{24}$, 4. $\frac{19}{30}$, 5. $\frac{1}{8}$, 6. $\frac{2}{11}$,
7. $\frac{16}{12}$, 8. $\frac{4}{3}$, 9. $\frac{6}{4}$, 10. $\frac{1}{3}$, 11. $\frac{17}{10}$

Ans:

Proper Fraction	Improper Fraction
1. $\frac{4}{6}$	7. $\frac{16}{12}$
2. $\frac{3}{7}$	8. $\frac{4}{3}$
3. $\frac{15}{24}$	9. $\frac{6}{4}$
4. $\frac{19}{30}$	11. $\frac{17}{10}$

Ans:

Proper Fraction	Improper Fraction
5 $\frac{1}{8}$	
6 $\frac{2}{11}$	
10 $\frac{1}{3}$	

iii Convert the improper into compound fraction.

1 $\frac{9}{4}$

Sol:

$$4\overline{)9}\quad 2,\ -8,\ 1$$

$2\frac{1}{4}$ Ans:

2 $\frac{11}{3}$

Sol:

$$3\overline{)11}\quad 3,\ -9,\ 2$$

$3\frac{2}{3}$ Ans:

3 $\frac{10}{6}$

Sol:

$$6\overline{)10}\quad 1,\ -6,\ 4$$

$1\frac{4}{6}$ Ans:

4 $\frac{21}{10}$

Sol:

$$10\overline{)21}\quad 2,\ -20,\ 1$$

$2\frac{1}{10}$ Ans:

5 $\frac{9}{7}$

Sol:

$$7\overline{)9}\quad 1,\ -7,\ 2$$

$1\frac{2}{7}$ Ans:

6 $\frac{30}{24}$

Sol:

$$24\overline{)30}\quad 1,\ -24,\ 6$$

$1\frac{6}{24}$ Ans:

7 $\frac{7}{3}$

Sol:

$$3\overline{)7}\quad 2,\ -6,\ 1$$

$2\frac{1}{3}$ Ans:

8 $\frac{15}{13}$

Sol:

$$13\overline{)15}\quad 1,\ -13,\ 2$$

$1\frac{2}{13}$ Ans:

9 $\frac{13}{4}$

Sol:

$$4\overline{)13}\quad 3,\ -12,\ 1$$

$3\frac{1}{4}$ Ans:

10 $\frac{21}{9}$

Sol:

$$9\overline{)21}\quad 2,\ -18,\ 3$$

$2\frac{3}{9}$ Ans:

11 $\frac{15}{7}$

Sol:

$$7\overline{)15}\quad 2,\ -14,\ 1$$

$2\frac{1}{7}$ Ans:

12 $\frac{18}{4}$

Sol:

$$4\overline{)18}\quad 2,\ -16,\ 2$$

$2\frac{2}{4}$ Ans:

13 $\frac{19}{6}$

Sol:

$$6\overline{)19}\quad 3,\ -18,\ 1$$

$3\frac{1}{6}$ Ans:

14 $\frac{25}{21}$

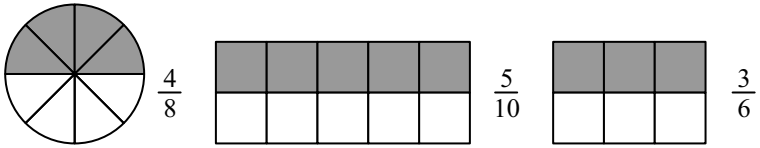
Sol:

$$21\overline{)25}\quad 1,\ -21,\ 4$$

$1\frac{4}{21}$ Ans:

TO FIND THE LIKE OR EQUAL FRACTIONS

Such fractions whose denominators and nominators are different not their solutions are equal, that fractions are called equal fractions.



$\frac{4}{8}$ $\frac{5}{10}$ $\frac{3}{6}$

IMPORTANT INFORMATION

- In above diagram, the length and width is equal in all. Such fractions are called like fraction.
- In diagram (i) It is divided into six equal parts, from which three parts are sheded so that fraction is $\frac{3}{6}$ $\frac{1}{2}$
- In diagram ii, it is divided into ten equal parts, from which five parts are sheded so that fraction is. $\frac{5}{10}$ $\frac{1}{2}$
- In diagrams (iii) it is divided into eight parts from which four parts are sheded so that fraction is $\frac{4}{8}$ $\frac{1}{2}$

It is proved that halves of all diagram are sheded and their Fraction is $\frac{1}{2}$ in all.

Sothat fraction $\frac{4}{8} = \frac{5}{10} = \frac{3}{6}$ are equal

Write the following fractions in three equal fractions.

i $\frac{1}{3}, \frac{2}{6}, \frac{3}{9}, \frac{4}{12}, \frac{5}{15}$

ii $\frac{8}{10}, \frac{4}{5}, \_\_, \_\_, \_\_$

iii $\frac{2}{4}, \frac{1}{2}, \_\_, \_\_, \_\_$

iv $\frac{3}{9}, \frac{6}{18}, \frac{3}{9}, \frac{1}{3}, \_\_$

EXERCISE 3.2

i Write down the five equal fractions each of the following.

1 $\frac{12}{13}$

Sol: $\frac{12x1}{13x1}, \frac{12x2}{13x2}, \frac{12x3}{13x3}, \frac{12x4}{13x4}, \frac{12x5}{13x5}$

$\frac{12}{13}, \frac{24}{26}, \frac{36}{39}, \frac{48}{52}, \frac{60}{65}$ Ans:

2 $\frac{5}{6}$

Sol: $\frac{5x1}{6x1}, \frac{5x2}{6x2}, \frac{5x3}{6x3}, \frac{5x4}{6x4}, \frac{5x5}{6x5}$

$\frac{5}{6}, \frac{10}{12}, \frac{15}{18}, \frac{20}{24}, \frac{25}{30}$ Ans:

3 $\frac{2}{4}$

Sol: $\frac{2x1}{4x1}, \frac{2x2}{4x2}, \frac{2x3}{4x3}, \frac{2x4}{4x4}, \frac{2x5}{4x5}$

$\frac{2}{4}, \frac{4}{8}, \frac{6}{12}, \frac{8}{16}, \frac{10}{20}$ Ans:

4 $\frac{5}{11}$

Sol: $\frac{5x1}{11x1}, \frac{5x2}{11x2}, \frac{5x3}{11x3}, \frac{5x4}{11x4}, \frac{5x5}{11x5}$

$\frac{5}{11}, \frac{10}{22}, \frac{15}{33}, \frac{20}{44}, \frac{25}{55}$ Ans:

5 $\frac{3}{9}$

Sol: $\frac{3x1}{9x1}$, $\frac{3x2}{9x2}$, $\frac{3x3}{9x3}$, $\frac{3x4}{9x4}$, $\frac{3x5}{9x5}$

$\frac{3}{9}$, $\frac{6}{18}$, $\frac{9}{27}$, $\frac{12}{36}$, $\frac{15}{45}$ Ans:

6 $\frac{1}{7}$

Sol: $\frac{1x1}{7x1}$, $\frac{1x2}{7x2}$, $\frac{1x3}{7x3}$, $\frac{1x4}{7x4}$, $\frac{1x5}{7x5}$

$\frac{1}{7}$, $\frac{2}{14}$, $\frac{3}{21}$, $\frac{4}{28}$, $\frac{5}{35}$ Ans:

7 $\frac{3}{12}$

Sol: $\frac{3x1}{12x1}$, $\frac{3x2}{12x2}$, $\frac{3x3}{12x3}$, $\frac{3x4}{12x4}$, $\frac{3x5}{12x5}$

$\frac{3}{12}$, $\frac{6}{24}$, $\frac{9}{36}$, $\frac{12}{48}$, $\frac{15}{60}$ Ans:

8 $\frac{2}{14}$

Sol: $\frac{2x1}{14x1}$, $\frac{2x2}{14x2}$, $\frac{2x3}{14x3}$, $\frac{2x4}{14x4}$, $\frac{2x5}{14x5}$

$\frac{2}{14}$, $\frac{4}{28}$, $\frac{6}{42}$, $\frac{8}{56}$, $\frac{10}{70}$ Ans:

9 $\frac{10}{9}$

Sol: $\frac{10x1}{9x1}$, $\frac{10x2}{9x2}$, $\frac{10x3}{9x3}$, $\frac{10x4}{9x4}$, $\frac{10x5}{9x5}$

$\frac{10}{9}$, $\frac{20}{18}$, $\frac{30}{27}$, $\frac{40}{36}$, $\frac{50}{45}$ Ans:

10 $\frac{7}{8}$

Sol: $\frac{7x1}{8x1}$, $\frac{7x2}{8x2}$, $\frac{7x3}{8x3}$, $\frac{7x4}{8x4}$, $\frac{7x5}{8x5}$

$\frac{7}{8}$, $\frac{14}{16}$, $\frac{21}{24}$, $\frac{28}{32}$, $\frac{35}{40}$ Ans:

11 $\frac{2}{7}$

Sol: $\frac{2x1}{2x1}$, $\frac{2x2}{2x2}$, $\frac{2x3}{2x3}$, $\frac{2x4}{2x4}$, $\frac{2x5}{2x5}$

$\frac{2}{2}$, $\frac{4}{14}$, $\frac{6}{21}$, $\frac{8}{28}$, $\frac{10}{35}$ Ans:

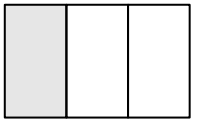
$\frac{4}{4}$, $\frac{6}{6}$, $\frac{8}{8}$, $\frac{10}{10}$,

12 $\frac{9}{15}$

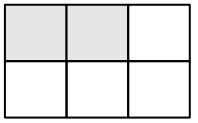
Sol: $\frac{9x1}{15x1}$, $\frac{9x2}{15x2}$, $\frac{9x3}{15x3}$, $\frac{9x4}{15x4}$, $\frac{9x5}{15x5}$

$\frac{9}{15}$, $\frac{18}{30}$, $\frac{27}{45}$, $\frac{36}{60}$, $\frac{45}{75}$ Ans:

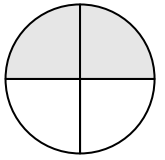
ii **Write down the equal fraction according to the diagrams.**

1 

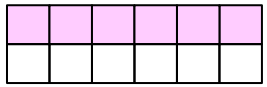
Ans: $\frac{1}{3}$

2 

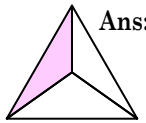
$\frac{2}{6}$ Ans: _____

3 

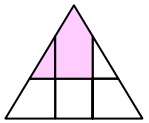
Ans: $\frac{2}{4}$

4. 

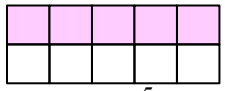
Ans: $\frac{6}{12}$

5. 

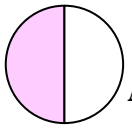
Ans: $\frac{1}{3}$

6. 

Ans: $\frac{2}{6}$

7. 

Ans: $\frac{5}{10}$

8. 

Ans: $\frac{1}{2}$

TO SIMPLIFY THE COMMON FRACTIONS

We know that equal fraction can be formed by division of same number to denominator and Nominator By this function we can simplify common fraction.

For Example: $\frac{14}{21}$

Solution $\frac{14 \div 7}{21 \div 7} = \frac{2}{3}$

For Example: $\frac{12}{6}$

Solution $\frac{12 \div 2}{16 \div 2} = \frac{6}{8}$

$\frac{6 \div 2}{7 \div 2} = \frac{3}{4}$

COMPARISON OF FRACTIONS

In comparison of fraction "<" is used for (isless than) and ">" is used for (is greater than) To find the less or greater fraction from same denominator fractions.

Separate the same denometor with respect to less greater fraction

In equal denominator fraction where nominator is greater than it is greater fraction and where nominator is less than denominator it is less fraction.

In Example: From $\frac{7}{8}$ And $\frac{3}{8}$ $\frac{3}{8}$ Is Less than $\frac{7}{8}$

Remember this

Such fractions whose nominators are equal but from which denominator is less than that of denominator fraction is greater and whose denominator is greater than that of nominator, the fraction is less.

COMPARISON OF DIFFERENT DENOMINATOR AND NOMINATOR FRACTION

Such fraction whose nominators and denominators are different then for Comparison of both the nominator of first is multiplied with denominator of an other and nominator of second is multiplied with denominator of other.

As: $\frac{3}{4}$ And $\frac{2}{6}$ are compared

Solution: $\frac{3}{4}$ ⁊ $\frac{2}{6}$

$3 \times 6 \square 2 \times 4$

$9 \square 8$

$9 > 8$

So that $\frac{3}{4} > \frac{2}{6}$

EXERCISE 3.3

i Show in simplified from the fractions.

1. $\frac{27}{81}$

Sol: $\frac{\cancel{27}^{9}}{\cancel{81}_{27}}$

$= \frac{\cancel{9}^{3}}{\cancel{27}_{9}}$

$= \frac{\cancel{3}^{1}}{\cancel{9}_{3}}$

$= \frac{1}{3}$ Ans:

2. $\frac{9}{45}$

Sol: $\frac{\cancel{9}^{3}}{\cancel{45}_{15}}$

$= \frac{\cancel{3}^{1}}{\cancel{15}_{5}}$

$= \frac{1}{5}$ Ans:

3 $\frac{35}{7}$

Sol: $\frac{\cancel{35}^{5}}{\cancel{7}_{1}}$

$= \frac{5}{1}$ Ans:

4 $\frac{15}{30}$

Sol: $\frac{\cancel{15}^{3}}{\cancel{30}_{6}}$

$= \frac{\cancel{3}^{1}}{\cancel{6}_{2}}$

$= \frac{1}{2}$ Ans:

5 $\frac{24}{48}$

Sol: $\frac{\cancel{24}^{12}}{\cancel{48}_{24}}$

$= \frac{\cancel{12}^{6}}{\cancel{24}_{12}}$

$= \frac{\cancel{6}^{3}}{\cancel{12}_{6}}$

$= \frac{\cancel{3}^{1}}{\cancel{6}_{2}}$

$= \frac{1}{2}$ Ans:

6 $\frac{45}{63}$

Sol: $\frac{\cancel{45}^{15}}{\cancel{63}_{21}}$

$= \frac{\cancel{15}^{5}}{\cancel{21}_{7}}$

$= \frac{5}{7}$ Ans:

7 $\frac{21}{28}$

Sol: $\frac{\cancel{21}^{3}}{\cancel{28}_{4}}$

$= \frac{3}{4}$ Ans:

8 $\frac{42}{24}$

Sol: $\frac{\cancel{42}^{21}}{\cancel{24}_{12}}$

$= \frac{\cancel{21}^{7}}{\cancel{12}_{4}}$

$= \frac{7}{4}$ Ans:

9 $\frac{14}{18}$

Sol: $\frac{\cancel{14}^{7}}{\cancel{18}_{9}}$

$= \frac{7}{9}$ Ans:

10 $\frac{21}{63}$

Sol: $\frac{\cancel{21}^{7}}{\cancel{63}_{21}}$

$= \frac{\cancel{7}^{1}}{\cancel{21}_{3}}$

$= \frac{1}{3}$ Ans:

11 $\frac{7}{49}$

Sol: $\frac{\cancel{7}^{1}}{\cancel{49}_{7}}$

$= \frac{1}{7}$ Ans:

12 $\frac{48}{40}$

Sol: $\frac{\cancel{48}^{24}}{\cancel{40}_{20}}$

$= \frac{\cancel{24}^{12}}{\cancel{20}_{10}}$

$= \frac{\cancel{12}^{6}}{\cancel{10}_{5}}$

$= \frac{6}{5}$ Ans:

ii Encircle the greater fraction in pairs

1 $\left(\frac{5}{6}\right), \frac{5}{9}$ 2 $\left(\frac{1}{4}\right), \frac{1}{5}$ 3 $\left(\frac{9}{11}\right), \frac{9}{2}$ 4 $\frac{6}{12}, \left(\frac{6}{13}\right)$

5 $\frac{3}{6}, \left(\frac{3}{3}\right)$ 6 $\left(\frac{1}{9}\right), \frac{1}{10}$ 7 $\frac{11}{9}, \left(\frac{12}{9}\right)$ 8 $\left(\frac{27}{81}\right), \frac{25}{81}$

iii Encircle the less fraction in pairs.

1 $\left(\frac{2}{5}\right), \frac{2}{6}$ 2 $\left(\frac{3}{7}\right), \frac{3}{2}$ 3 $\left(\frac{1}{9}\right), \frac{1}{7}$ 4 $\frac{2}{6}, \left(\frac{1}{6}\right)$

5 $\left(\frac{11}{20}\right), \frac{11}{15}$ 6 $\frac{7}{8}, \left(\frac{7}{6}\right)$ 7 $\left(\frac{9}{3}\right), \frac{6}{3}$ 8 $\left(\frac{8}{81}\right), \frac{8}{82}$

iv Compare the fraction in the “>” or “<”

1 $\frac{3}{5} \ll \frac{7}{9}$ 2 $\frac{21}{15} \ll \frac{21}{9}$ 3 $\frac{7}{4} \gg \frac{7}{9}$ 4 $\frac{6}{7} \ll \frac{8}{9}$

5 $\frac{5}{4} \ll \frac{9}{4}$ 6 $\frac{9}{11} \gg \frac{5}{8}$ 7 $\frac{3}{5} \gg \frac{2}{6}$ 8 $\frac{2}{7} \ll \frac{3}{5}$

ADDITION OF FRACTIONS:

Addition of where fractions on the base of equal denominator.

In same denominator fraction, only nominators are added and denominator is obtained same from Both.

Example $\frac{5}{3} + \frac{4}{3}$

Solution $\frac{5+4}{3} =$

$\frac{9}{3} =$

Addition of direct fractions on the base of equal denominators the addition of direct fraction is solved as in same fractions.

Example $\frac{9}{21} + \frac{11}{21}$

Solution $= \frac{9+11}{21}$

$= \frac{18}{21}$

ADDITION OF DIFFERENT DENOMINATOR FRACTIONS:

In different denominator fraction, the denominators of all fractions are formed as equal and then least common multiple of denominators in formed then L.C.M is divided by denominators of all given fraction and answer is multiplied in the nominators L.C.M is denominator and product of nominator is sum of fractions.

Example: Simplify. $\frac{4}{7} + \frac{5}{3}$

Solution:

3	7 – 3
7	7 – 1
	1 – 1

$7 \times 3 = 21$

$= \frac{(3 \times 4) + (7 \times 5)}{21}$

$= \frac{12 + 35}{21}$

$= \frac{47}{21}$

Example: Simplify. $4\frac{1}{8} + 1\frac{3}{4}$

Solution:

2	8 – 4
2	4 – 2
2	2 – 2
	1 – 1

$2 \times 2 \times 2 = 8$

$= 4 + 1 \left(\frac{1}{8} + \frac{3}{4}\right)$

$= 5 \left(\frac{1}{8} + \frac{3}{4}\right)$

$= 5 \frac{1+6}{8}$

$= 5\frac{7}{8}$

EXERCISE 3.4

Solve:

(1) $\frac{5}{12} + \frac{9}{2}$

1st method

Sol: $= \frac{5}{12} + \frac{9}{2}$

$= \frac{(5x1) + (9x6)}{12}$

$= \frac{5 + 54}{12}$

$= \frac{59}{12}$

$= 4\frac{11}{12}$ ***Ans***

Second method

Sol: $= \frac{5}{12} + \frac{9}{2}$

$= \frac{5x1}{12x1} + \frac{9x6}{2x6}$

$= \frac{5}{12} + \frac{54}{12}$

$= \frac{5 + 54}{12}$

$= \frac{59}{12}$

$= 4\frac{11}{12}$ ***Ans***

R.W

2	12 , 2
2	6 , 1
3	3 , 1
	1 , 1

2 x 2 x 3 = 12

```
     4
12 ) 59
    -48
     11
```

(2) $\frac{3}{14} + \frac{2}{7}$

1st method

Sol: $= \frac{3}{14} + \frac{2}{7}$

$= \frac{(3\times1) + (2\times2)}{14}$

$= \frac{3 + 4}{14}$

$= \frac{7}{14}$

$= \frac{1}{2}$ ***Ans***

R.W

$$\begin{array}{r|l} 2 & 14\ ,\ 7 \\ \hline 7 & 7\ ,\ 1 \\ \hline & 1\ ,\ 1 \end{array}$$

2 x 7 = 14

Second method

Sol: $= \frac{3}{14} + \frac{2}{7}$

$= \frac{3\times1}{14\times1} + \frac{2\times2}{7\times2}$

$= \frac{3}{14} + \frac{4}{14}$

$= \frac{3 + 4}{14}$

$= \frac{\cancel{7}^{1}}{\cancel{14}_{2}}$

$= \frac{1}{2}$ ***Ans***

R.W

$$\begin{array}{r|l} & \ 2 \\ \hline 7 & 14 \\ & -14 \\ \hline & \ 00 \end{array}$$

(3) $\frac{5}{18} + \frac{7}{9}$

1st method

Sol: $= \frac{5}{18} + \frac{7}{9}$

$= \frac{(5\times1) + (7\times2)}{18}$

$= \frac{5 + 14}{18}$

$= \frac{19}{18}$

$= 1\frac{1}{18}$ ***Ans***

R.W

$$\begin{array}{r|l} 2 & 18\ ,\ 9 \\ \hline 3 & 9\ ,\ 9 \\ \hline 3 & 3\ ,\ 3 \\ \hline & 1\ ,\ 1 \end{array}$$

2 x 3 x 3 = 18

$$\begin{array}{r|l} & \ 1 \\ \hline 18 & 19 \\ & -18 \\ \hline & \ 01 \end{array}$$

Second method

Sol: $= \frac{5}{18} + \frac{7}{9}$

$= \frac{5\times1}{18\times1} + \frac{7\times2}{9\times2}$

$= \frac{5}{18} + \frac{14}{18}$

$= \frac{5 + 14}{18}$

$= \frac{19}{18}$

$= 1\frac{1}{18}$ ***Ans***

(4) $\frac{1}{16} + \frac{2}{4} + \frac{1}{8}$

1st method

Sol: $= \frac{1}{16} + \frac{2}{4} + \frac{1}{8}$

$= \frac{(1x1) + (2x4) + (1x2)}{16}$

$= \frac{1 + 8 + 2}{16}$

$= \frac{11}{16}$ ***Ans***

Second method

Sol: $= \frac{1}{16} + \frac{2}{4} + \frac{1}{8}$

$= \frac{1x1}{14x1} + \frac{2x4}{4x4} + \frac{1x2}{8x2}$

$= \frac{1}{16} + \frac{8}{16} + \frac{2}{16}$

$= \frac{1 + 8 + 2}{18}$

$= \frac{11}{16}$

$= 11\frac{1}{5}$ ***Ans***

R.W

2	16 , 4 ,8
2	8 , 2 ,4
2	4 , 1 ,2
2	2 , 1 ,1
	1 , 1 ,1

2 x 2 x 2 x 2 = 18

R.W

```
     1
11 ) 16
    -11
     05
```


(5) $\frac{4}{2} + \frac{3}{4} + \frac{5}{4}$

1st method

Sol: $= \frac{4}{2} + \frac{3}{4} + \frac{5}{4}$

$= \frac{(4x2) + (3x1) + (5x1)}{4}$

$= \frac{8 + 3 + 5}{4}$

$= \frac{16}{4}$ = 4 ***Ans***

Second method

Sol: $= \frac{4}{2} + \frac{3}{4} + \frac{5}{4}$

$= \frac{4 \times 2}{2 \times 2} + \frac{3 \times 1}{4 \times 1} + \frac{5 \times 1}{4 \times 1}$

$= \frac{8}{4} + \frac{3}{4} + \frac{5}{4}$

$= \frac{8 + 3 + 5}{4}$

$= \frac{16}{4}$ = 4 ***Ans***

R.W

2	2 , 4 , 4
2	1 , 2 , 2
	1 , 1 , 1

2 x 2 = 4

6 $\frac{3}{10} + \frac{2}{5} + \frac{7}{20}$

R.W

2	10 , 5 , 20
2	5 , 5 , 10
5	5 , 5 , 5
	1 , 1 , 1

2 x 2 x 5 = 20

1st method

Sol: $= \frac{3}{10} + \frac{2}{5} + \frac{7}{20}$

$= \frac{(3 \times 2) + (2 \times 4) + (7 \times 1)}{20}$

$= \frac{6 + 8 + 7}{20}$

$= \frac{21}{20}$

$= 1\ \frac{1}{20}$ ***Ans***

$20 \overline{)\ 21}$ (1), -22, 01

Second method

Sol: $= \frac{3}{10} + \frac{2}{5} + \frac{7}{20}$

$= \frac{3 \times 2}{10 \times 2} + \frac{2 \times 4}{5 \times 4} + \frac{7 \times 1}{20 \times 1}$

$= \frac{6}{20} + \frac{8}{20} + \frac{7}{20}$

$= \frac{6 + 8 + 7}{20}$

$= \frac{21}{20}$

$= 1\ \frac{1}{20}$ ***Ans***

7 $\frac{1}{4} + \frac{1}{3} + \frac{1}{2}$

R.W

2	4 , 3 , 2
2	2 , 3 , 1
3	1 , 3 , 1
	1 , 1 , 1

2 x 2 x3 = 12

1st method

Sol: $= \frac{1}{4} + \frac{1}{3} + \frac{1}{2}$

$= \frac{(1 \times 3) + (1 \times 4) + (1 \times 6)}{12}$

$= \frac{3 + 4 + 6}{12}$

$= \frac{13}{12}$

$= 1\ \frac{1}{12}$ ***Ans***

$12 \overline{)\ 13}$ (1), -12, 01

Second method

Sol: $= \frac{1}{4} + \frac{1}{3} + \frac{1}{2}$

$= \frac{1 \times 3}{4 \times 3} + \frac{1 \times 4}{3 \times 4} + \frac{1 \times 6}{2 \times 6}$

$= \frac{3}{12} + \frac{4}{12} + \frac{6}{12}$

$= \frac{3 + 4 + 6}{12}$

$= \frac{13}{12}$

$= 1\ \frac{1}{12}$ ***Ans***

8 $\frac{1}{6} + \frac{2}{3} + \frac{1}{5}$

R.W

2	6 , 3, 5
3	3 , 3 , 5
5	1 , 1 , 5
	1 , 1 , 1

2 x 3 x 5 = 30

$$\begin{array}{r|l} & 1 \\ 30 & 31 \\ & -30 \\ & 01 \end{array}$$

1st method

Sol: $= \frac{1}{6} + \frac{2}{3} + \frac{1}{5}$

$= \frac{(1 \text{ x}5)+(2\text{x}10)+(1\text{x}6)}{30}$

$= \frac{5 + 20 + 6}{30}$

$= \frac{31}{30}$

$= 1\frac{1}{30}$ ***Ans***

Second method

Sol: $= \frac{1}{6} + \frac{2}{3} + \frac{1}{5}$

$= \frac{1 \text{ x } 5}{6 \text{ x } 5} + \frac{2 \text{ x } 10}{3 \text{ x } 10} + \frac{1 \text{ x } 6}{5 \text{ x } 6}$

$= \frac{5}{30} + \frac{20}{30} + \frac{6}{30}$

$= \frac{5 + 20 + 6}{30}$

$= \frac{31}{30}$

$= 1\frac{1}{30}$ ***Ans***

9 $\frac{5}{8} + \frac{1}{12}$

R.W

2	8 , 12
2	4 , 6
3	2 , 3
3	1 , 3
	1 , 1

2 x 2 x 2 x 3 = 24

1st method

Sol: $= \frac{5}{8} + \frac{1}{12}$

$= \frac{(5\text{x}3) + (1\text{x}2)}{24}$

$= \frac{15 + 2}{24}$

$= \frac{17}{24}$ ***Ans***

Second method

Sol: $= \frac{5}{8} + \frac{1}{12}$

$= \frac{5 \text{ x } 3}{8 \text{ x } 3} + \frac{1 \text{ x } 2}{12 \text{ x } 2}$

$= \frac{15}{24} + \frac{2}{24}$

$= \frac{15 + 2}{24}$

$= \frac{17}{24}$ ***Ans***

(10) $2\frac{1}{2} + 4\frac{1}{3}$

1st method

Sol: $= 2\frac{1}{2} + 4\frac{1}{3}$

$= \frac{5}{2} + \frac{13}{3}$

$= \frac{(5 \times 3)+(13 \times 2)}{6}$

$= \frac{15+26}{6}$

$= \frac{41}{6}$

$= 1\frac{5}{6}$ ***Ans***

R.W

2	2 , 3
3	1 , 3
	1 , 1

2 x 3 = 6

$$6 \overline{)41} = 1,\quad 41 - 36 = 05$$

Second method

Sol: $= 2\frac{1}{2} + 4\frac{1}{3}$

$= 2+4\left(\frac{1}{2} + \frac{1}{3}\right)$

$= 6\left(\frac{1 \times 3 + 1 \times 2}{6}\right)$

$= 6\left(\frac{3+2}{6}\right)$

$= 6\frac{5}{6}$ ***Ans***

(11) $1\frac{7}{9} + 1\frac{3}{4}$

1st method

Sol: $= 1\frac{7}{9} + 1\frac{3}{4}$

$= \frac{16}{9} + \frac{7}{4}$

$= \frac{(16 \times 4)+(7 \times 9)}{36}$

$= \frac{64+63}{36}$

$= \frac{127}{36}$

$= 3\frac{19}{36}$ ***Ans***

R.W

2	9 , 4
2	9 , 2
3	9 , 1
3	3 , 3
	1 , 1

2 x 2 x 3 x 3 = 36

36 x 3 = 108

$$36 \overline{)127} = 3,\quad 127 - 108 = 19$$

Second method

Sol: $= 1\frac{7}{9} + 1\frac{3}{4}$

$= \frac{16}{9} + \frac{7}{4}$

$= \frac{16 \times 4}{9 \times 4} + \frac{7 \times 9}{4 \times 9}$

$= \frac{64}{36} + \frac{63}{36}$

$= \frac{64 + 63}{36}$

$= \frac{127}{36}$

$= 3\frac{19}{36}$ ***Ans***

(12) $6\frac{3}{4} + 4\frac{1}{10}$

R.W

1st method

$$2 \mid 4, 10$$
$$2 \mid 2, 5$$
$$5 \mid 1, 5$$
$$\mid 1, 1$$

$2 \times 2 \times 3 = 20$

Sol: $= 6\frac{3}{4} + 4\frac{1}{10}$

$= \frac{27}{4} + \frac{41}{10}$

$= \frac{(27 \times 5) + (41 \times 2)}{20}$

$= \frac{135 + 82}{20}$

$= \frac{217}{20}$

$= 10\frac{17}{20}$ ***Ans***

$$20 \overline{)\ 217}\ 10$$
$$-200$$
$$17$$

Second method

Sol: $= 6\frac{3}{4} + 4\frac{1}{10}$

$= \frac{27}{4} + \frac{41}{10}$

$= \frac{27x5}{4x5} + \frac{41x2}{10x2}$

$= \frac{135}{20} + \frac{82}{20}$

$= \frac{135 + 82}{20}$

$= \frac{217}{20}$

$= 10\frac{17}{20}$ ***Ans***

SUBTRACTION OF FRACTIONS:

In subtraction of fraction, we find least common multiple of denominators and the all function are solved as addition then nominators are subtracted.

Example:

Solution:

$$2 \mid 8 - 4$$
$$2 \mid 4 - 2$$
$$2 \mid 2 - 1$$
$$\mid 1 - 1$$

$2 \times 2 \times 1 = 8$

$\frac{4}{8} - \frac{1}{4}$

$= \frac{(4 \times 1) - (1 \times 2)}{8}$

$= \frac{4 + 2}{8}$

$= \frac{\cancel{2}^{1}}{\cancel{8}_{4}} = \frac{1}{4}$

Example:

Solution:

$$6 \mid 7 - 6$$
$$7 \mid 7 - 1$$
$$\mid 1 - 1$$

$6 \times 7 = 42$

$5\frac{3}{7} - 2\frac{1}{6}$

$= 5 - 2\left(\frac{3}{7} - \frac{1}{6}\right)$

$= 3\left(\frac{6 \times 3 - 7 \times 1}{42}\right)$

$= 3\frac{18 + 7}{42}$

$= 3\frac{11}{42}$

EXERCISE 3.5

Perform the difference between mixed fraction.

1 $3\frac{1}{8} - 1\frac{2}{3}$

R.W

2	8 , 3
2	4 , 3
2	2 , 3
3	1 , 3
	1 , 1

2 x 2 x 2 x 3 = 24

First method

Sol: $= 3\frac{1}{8} - 1\frac{2}{3}$

$= \frac{25}{8} - \frac{5}{3}$

$= \frac{(25 \times 3) - (5 \times 8)}{24}$

$= \frac{75 - 40}{24}$

$= \frac{35}{24}$

$= 1\ \frac{11}{24}$ ***Ans***

$24 \overline{)\ 35\ (1}$
-24
11

Second method

Sol: $= 3\frac{1}{8} - 1\frac{2}{3}$

$= \frac{25}{8} - \frac{5}{3}$

$= \frac{25x3}{8x3} - \frac{5x8}{3x8}$

$= \frac{75}{24} - \frac{40}{24}$

$= \frac{75 - 40}{24}$

$= \frac{35}{24}$

$= 1\ \frac{11}{24}$ ***Ans***

2 $9\frac{3}{7} - 3\frac{4}{5}$

R.W

5	7 , 5
7	7 , 1
	1 , 1

5 x 7 =35

First method

Sol: $= 9\frac{3}{7} - 3\frac{4}{5}$

$= \frac{66}{7} - \frac{19}{5}$

$= \frac{(66x5) - (19x7)}{35}$

$= \frac{330 - 133}{354}$

$= \frac{197}{35}$

$= 5\ \frac{22}{35}$ ***Ans***

$35 \overline{)\ 197\ (5}$
-175
22

Second method

Sol: $= 9\frac{3}{7} - 3\frac{4}{5}$

$= \frac{66}{7} - \frac{19}{5}$

$= \frac{66x5}{7x5} - \frac{19x7}{5x7}$

$= \frac{330}{35} - \frac{133}{35}$

$= \frac{330 - 133}{35}$

$= \frac{197}{35}$

$= 5\ \frac{22}{35}$ ***Ans***

③ $\frac{4}{5} - \frac{3}{7}$

R.W

5	5 , 7
7	1 , 7
	1 , 1

5 x 7 = 35

First method

Sol: $= \frac{4}{5} - \frac{3}{7}$

$= \frac{4x7 - 3 \times 5}{35}$

$= \frac{28 - 15}{35}$

$= \frac{13}{35}$ ***Ans***

Second method

Sol: $= \frac{4}{5} - \frac{3}{7}$

$= \frac{4 \times 7}{5 \times 7} - \frac{3 \times 5}{7 \times 5}$

$= \frac{28}{35} - \frac{15}{35}$

$= \frac{28 - 15}{35}$

$= \frac{13}{35}$ ***Ans***

④ $\frac{7}{4} - \frac{4}{5}$

R.W

2	4 , 5
2	2 , 5
5	1 , 5
	1 , 1

2 x 2 x 5 =20

First method

Sol: $= \frac{7}{4} - \frac{4}{5}$

$= \frac{(7x5) - (4x4)}{20}$

$= \frac{35 - 16}{20}$

$= \frac{19}{20}$ ***Ans***

Second method

Sol: $= \frac{7}{4} - \frac{4}{5}$

$= \frac{7 \times 5}{4 \times 5} - \frac{4 \times 4}{5 \times 4}$

$= \frac{35}{20} - \frac{16}{20}$

$= \frac{35 - 16}{20}$

$= \frac{19}{20}$ ***Ans***

5 $\frac{15}{6} - \frac{7}{3}$

R.W

2	6 , 3
3	3 , 3
	1 , 1

2 x 3 = 6

First method

Sol: = $\frac{15}{6} - \frac{7}{3}$

= $\frac{(15x1) - (7 \times 2)}{6}$

= $\frac{15 - 14}{6}$

= $\frac{1}{6}$ ***Ans***

Second method

Sol: = $\frac{15}{6} - \frac{7}{3}$

= $\frac{15 \times 1}{6 \times 1} - \frac{7 \times 2}{3 \times 2}$

= $\frac{15}{6} - \frac{14}{6}$

= $\frac{15 - 14}{6}$

= $\frac{1}{6}$ ***Ans***

6 $6\frac{3}{4} - 3\frac{1}{2}$

R.W

2	4 , 2
2	2 , 1
	1 , 1

2 x 2 =4

First method

Sol: = $6\frac{3}{4} - 3\frac{1}{2}$

$\frac{27}{4} - \frac{7}{2}$

= $\frac{(27x1) - 7x2)}{4}$

= $\frac{27 - 14}{4}$

= $\frac{13}{4}$

= $3\ \frac{1}{4}$ ***Ans***

$4 \overline{)\ 13}$ quotient 3, -12, remainder 01

Second method

Sol: = $6\frac{3}{4} - 3\frac{1}{2}$

= $\frac{27}{4} - \frac{7}{2}$

= $\frac{27 \times 1}{4 \times 1} - \frac{7 \times 2}{2 \times 2}$

= $\frac{27}{4} - \frac{14}{4}$

= $\frac{27 - 14}{4}$

= $\frac{13}{4}$

= $3\ \frac{1}{4}$ ***Ans***

7 $\frac{7}{8} - \frac{2}{4}$

R.W

2	8 , 4
2	4 , 2
2	2 , 1
	1 , 1

2 x 2 x 2 = 8

First method

Sol: $= \frac{7}{8} - \frac{2}{4}$

$= \frac{(7x1) - (2 x 2)}{8}$

$= \frac{7 - 4}{8}$

$= \frac{3}{8}$ ***Ans***

Second method

Sol: $= \frac{7}{8} - \frac{2}{4}$

$= \frac{7 x 1}{8 x 1} - \frac{2 x 2}{4 x 2}$

$= \frac{7}{8} - \frac{4}{8}$

$= \frac{7 - 4}{8}$

$= \frac{3}{8}$ ***Ans***

8 $3\frac{1}{4} - 2\frac{3}{4}$

First method

Sol: $= 3\frac{1}{4} - 2\frac{3}{4}$

$\frac{13}{4} - \frac{11}{4}$

$= \frac{13 - 11}{4}$

$= \frac{2}{4}$

$= \frac{1}{2}$ ***Ans***

9 $\frac{7}{8} - \frac{1}{7}$

R.W

2	8 , 7
2	4 , 7
2	2 , 7
7	1 , 7
	1 , 1

2 x 2 x 2 x7 = 56

First method

Sol: $= \frac{7}{8} - \frac{1}{7}$

$= \frac{(7x7) - (1 x 8)}{56}$

$= \frac{49 - 8}{56}$

$= \frac{41}{56}$ ***Ans***

Second method

Sol: $= \frac{7}{8} - \frac{1}{7}$

$= \frac{7 x 7}{8 x 7} - \frac{1 x 8}{7 x 8}$

$= \frac{49}{56} - \frac{8}{56}$

$= \frac{41}{56}$ ***Ans***

10 $\frac{27}{12} - \frac{5}{3}$

R.W

2	12 , 3
2	6 , 3
3	3 , 3
	1 , 1

2 x 2 x 3 = 12

First method

Sol: $= \frac{27}{12} - \frac{5}{3}$

$= \frac{(27x1) - (5 \times 4)}{12}$

$= \frac{27 - 20}{12}$

$= \frac{7}{12}$ ***Ans***

Second method

Sol: $= \frac{27}{12} - \frac{5}{3}$

$= \frac{27 \times 1}{12 \times 1} - \frac{5 \times 4}{3 \times 4}$

$= \frac{27}{12} - \frac{20}{12}$

$= \frac{27 - 20}{12}$

$= \frac{7}{12}$ ***Ans***

11 $\frac{5}{8} - \frac{1}{12}$

R.W

2	8 , 12
2	4 , 6
2	2 , 3
3	1 , 3
	1 , 1

2 x 2 x 2 x3 = 24

First method

Sol: $= \frac{5}{8} - \frac{1}{12}$

$= \frac{(5x3) - 1 \times 2)}{24}$

$= \frac{15 - 2}{24}$

$= \frac{13}{24}$ ***Ans***

Second method

Sol: $= \frac{5}{8} - \frac{1}{12}$

$= \frac{5 \times 3}{8 \times 3} - \frac{1 \times 2}{12 \times 2}$

$= \frac{15}{24} - \frac{2}{24}$

$= \frac{15 - 2}{24}$

$= \frac{13}{24}$ ***Ans***

(12) $\frac{3}{4} - \frac{1}{5}$

First method

Sol: $= \frac{3}{4} - \frac{1}{5}$

$= \frac{(3x5) - 1 x 4)}{20}$

$= \frac{15 - 4}{20}$

$= \frac{11}{24}$ ***Ans***

Second method

Sol: $= \frac{3}{4} - \frac{1}{5}$

$= \frac{3 x 5}{4 x 5} - \frac{1 x 4}{5 x 4}$

$= \frac{15}{20} - \frac{4}{20}$

$= \frac{15 - 4}{20}$

$= \frac{11}{20}$ ***Ans***

R.W

2	4 , 5
2	2 , 5
5	1 , 5
	1 , 1

2 x 2 x 5 = 20

MULTIPLICATION OF COMMON FRACTION

To know the result of common fractions, nominators are multiplied with nominators and denominators are multiplied with the denominators and fraction is written in shortest form.

Multiplication of the fractions =

$$\frac{\text{Nominator of first fraction X Nominator of second fraction}}{\text{Denominator of first fraction x denominator second fraction}}$$

Example: $\frac{7}{8} \times \frac{2}{4}$

Solution: $\frac{{}^{9}\cancel{63}}{{}_{1}\cancel{7}} \times \frac{3}{21} = \frac{9}{7}$

Example: $\frac{13}{26} \times \frac{117}{52}$

Solution: $\frac{{}^{1}\cancel{13}}{{}_{2}\cancel{26}} \times \frac{\cancel{117}^{9}}{\cancel{52}_{4}} = \frac{9}{8}$

EXERCISE 3.6

Q.1: Solve.

(1) $\frac{21}{42} \times \frac{64}{63}$

Sol: $= \frac{\cancel{21}^{7}}{\cancel{42}_{21}} \times \frac{\cancel{64}^{32}}{\cancel{63}_{21}}$

$= \frac{{}^{1}\cancel{7}}{\cancel{21}} \times \frac{\cancel{32}}{\cancel{21}_{3}}$

$= \frac{1}{21} \times \frac{32}{3}$

$= \frac{32}{63}$ ***Ans:***

(2) $\frac{219}{13} \times \frac{52}{415}$

Sol: $= \frac{\cancel{219}}{\cancel{13}_{1}} \times \frac{\cancel{52}^{4}}{\cancel{415}}$

$= \frac{876}{415}$ ***Ans:***

R.W

219
x4
876

3 $\frac{28}{45} \times \frac{9}{63} \times \frac{18}{15}$

Sol: $= \frac{\cancel{28}^{4}}{\cancel{45}_{15}} \times \frac{\cancel{9}^{3}}{\cancel{63}_{9}} \times \frac{18}{15}$

$= \frac{4}{15} \times \frac{\cancel{3}^{1}}{\cancel{9}_{1}} \times \frac{\cancel{18}^{2}}{\cancel{15}_{5}}$

$= \frac{4}{15} \times \frac{1}{1} \times \frac{2}{5}$

$= \frac{8}{75}$ ***Ans:***

4 $\frac{21}{4} \times \frac{28}{63} \times \frac{2}{7}$

Sol: $= \frac{\cancel{21}^{3}}{\cancel{4}_{1}} \times \frac{\cancel{28}^{4}}{\cancel{63}_{9}} \times \frac{2}{\cancel{7}_{1}}$

$= \frac{\cancel{3}^{1}}{\cancel{4}} \times \frac{\cancel{4}}{\cancel{9}_{3}} \times \frac{2}{1}$

$= \frac{2}{3}$ ***Ans:***

5 $5\frac{7}{8} \times 3\frac{4}{5}$

Sol: $= 5\frac{7}{8} \times 3\frac{4}{5}$

$= \frac{47}{8} \times \frac{19}{5}$

$= \frac{893}{40}$ ***Ans:***

R.W

$\frac{47}{\times 19}$

$\frac{423}{47+}$

$\frac{}{893}$

6 $\frac{8}{15} \times \frac{24}{16}$

Sol: $= \frac{\cancel{8}^{1}}{\cancel{15}_{5}} \times \frac{\cancel{24}^{8}}{\cancel{16}_{2}}$

$= \frac{\cancel{8}^{4}}{\cancel{10}_{5}}$

$= \frac{4}{10}$ ***Ans:***

7 $36 \times \frac{3}{4}$

Sol: $= 36 \times \frac{3}{4}$

$= \frac{\cancel{36}^{9}}{1} \times \frac{3}{\cancel{4}_{1}}$

$= 27$ ***Ans:***

8 $6\frac{7}{8} \times 4\frac{4}{5}$

Sol: $= 6\frac{7}{8} \times 4\frac{4}{5}$

$= \frac{\cancel{55}^{11}}{\cancel{8}_{1}} \times \frac{\cancel{24}^{3}}{\cancel{5}_{1}}$

$= 33$ ***Ans:***

9 $2\frac{5}{6} \times 1\frac{3}{5}$

Sol: $= 2\frac{5}{6} \times 1\frac{3}{5}$

$= \frac{17}{\cancel{6}_{3}} \times \frac{\cancel{8}^{4}}{5}$

$= \frac{68}{15}$ ***Ans:***

10 $39 \times \frac{2}{13}$

Sol: $= 39 \times \frac{2}{13}$

$= \frac{\cancel{39}^{3}}{1} \times \frac{2}{\cancel{13}_{1}}$

$= 6$ ***Ans:***

11 $\frac{4}{12} \times \frac{4}{9} \times \frac{6}{2}$

Sol: $= \frac{4}{12} \times \frac{\cancel{4}^{2}}{9} \times \frac{6}{\cancel{2}_{1}}$

$= \frac{4}{\cancel{12}_{6}} \times \frac{\cancel{2}^{1}}{9} \times \frac{6}{1}$

$= \frac{4}{\cancel{6}_{1}} \times \frac{1}{9} \times \frac{\cancel{6}^{1}}{1}$

$= \frac{4}{9}$ ***Ans:***

12 $\frac{6}{12} \times \frac{9}{2} \times \frac{15}{3}$

Sol: $= \frac{\cancel{6}^{3}}{12} \times \frac{\cancel{9}^{3}}{\cancel{2}_{1}} \times \frac{15}{\cancel{3}_{1}}$

$= \frac{3}{\cancel{12}_{4}} \times \frac{\cancel{3}^{1}}{1} \times \frac{15}{1}$

$= \frac{3}{4} \times \frac{1}{1} \times \frac{15}{1}$

$= \frac{45}{4}$

PROPERTIES OF ADDITION OF FRACTION

Property of addition of fraction: As we know that in changing place of two natural numbers, the result becomes same so that changing of place of two fractions, the sum become same.

Example:

$\frac{1}{2} + \frac{3}{3} = \frac{3}{3} + \frac{1}{2}$

L.H.S = R.H.S

$\frac{1}{2} + \frac{3}{3} = \frac{3}{3} + \frac{1}{2}$

$\frac{3+6}{6} = \frac{6+3}{3}$

$\frac{\cancel{9}^{3}}{\cancel{6}_{2}} = \frac{\cancel{9}^{3}}{\cancel{6}_{2}}$

$\frac{3}{2} = \frac{3}{2}$

Hence proved L.H.S = R.H.S

EXERCISE 3.7

Prove that the property of (commutative Law) for addition and also associative Law.

① $\frac{1}{2} + \frac{3}{5} = \frac{3}{5} + \frac{1}{2}$

Sol: $= \frac{1}{2} + \frac{3}{5} = \frac{3}{5} + \frac{1}{2}$

L.H.S = R.H.S

$= \frac{(1x5) + (3x2)}{10} = \frac{(3x2) + (1x5)}{10}$

$= \frac{5+6}{10} = \frac{6+5}{10}$

$= \frac{11}{10} = \frac{11}{10}$

Hence proved L.H.S = R.H.S

R.W

2	2 , 5
5	1 , 5
	1 , 1

2 x 5 = 10

② $\frac{7}{8} + \frac{3}{6} = \frac{3}{6} + \frac{7}{8}$

Sol: $= \frac{7}{8} + \frac{3}{6} = \frac{3}{6} + \frac{7}{8}$

L.H.S = R.H.S

$= \frac{(7x3) + (3x4)}{24} = \frac{(3x4) + (7x3)}{10}$

$= \frac{21+12}{24} = \frac{12+21}{24}$

$= \frac{33}{24} = \frac{33}{24}$

$= 1\frac{9}{24} = 1\frac{9}{24}$

Hence proved L.H.S = R.H.S

R.W

2	8 , 6
2	4 , 3
2	2 , 3
3	1 , 3
	1 , 1

2 x 2 x 2 x 3 = 24

③ $\frac{11}{3} + \frac{7}{8} = \frac{7}{8} + \frac{11}{3}$

Sol: $= \frac{11}{3} + \frac{7}{8} = \frac{7}{8} + \frac{11}{3}$

L.H.S = R.H.S

$= \frac{(11x8) + (7x3)}{24} = \frac{(7x3) + (11x8)}{24}$

$= \frac{88+21}{24} = \frac{21+88}{24}$

$= \frac{109}{24} = \frac{109}{24}$

$= 4\frac{13}{24} = 4\frac{13}{24}$

Hence proved L.H.S = R.H.S

R.W

2	3 , 8
2	3 , 4
2	3 , 2
3	3 , 1
	1 , 1

2 x 2 x 2 x 3 = 24

24) 109 (4
-96
13

④ $\frac{8}{9} + \frac{7}{11} = \frac{7}{11} + \frac{8}{9}$

Sol: $= \frac{8}{9} + \frac{7}{11} = \frac{7}{11} + \frac{8}{9}$

L.H.S = R.H.S

$= \frac{(8x11) + (7x9)}{99} = \frac{(7x9) + (8x11)}{99}$

$= \frac{88+63}{99} = \frac{63+88}{99}$

$= \frac{151}{99} = \frac{151}{99}$

$= 1\frac{52}{99} = 1\frac{52}{99}$

Hence proved L.H.S = R.H.S

R.W

3	9 , 11
3	3 , 11
11	1 , 11
	1 , 1

3 x 3 x 11 = 99

99) 151 (1
-99
52

5 $\frac{5}{6} + \frac{3}{4} = \frac{3}{4} + \frac{5}{6}$

Sol: $= \frac{5}{6} + \frac{3}{4} = \frac{3}{4} + \frac{5}{6}$

L.H.S = R.H.S

$= \frac{(5x2) + (3x3)}{12} = \frac{(3x3) + (5x2)}{12}$

$= \frac{10+9}{12} = \frac{9+10}{12}$

$= \frac{19}{12} = \frac{19}{12}$

$= 1\frac{7}{12} = 1\frac{7}{12}$

Hence proved L.H.S = R.H.S

R.W

2 | 6 , 4
2 | 3 , 2
3 | 3 , 1
  | 1 , 1

2 x 2 x 3 = 12

12) 19 (1
-12
7

6 $3\frac{2}{6} + 3\frac{1}{5} = 3\frac{1}{5} + 3\frac{2}{6}$

Sol: $= 3\frac{2}{6} + 3\frac{1}{5} = 3\frac{1}{5} + 3\frac{2}{6}$

L.H.S = R.H.S

$= \frac{(20x5) + (16x6)}{30} = \frac{(16x6) + 20x5)}{30}$

$= \frac{100+96}{30} = \frac{96+100}{30}$

$= \frac{\cancel{196}^{98}}{\cancel{30}_{15}} = \frac{\cancel{196}^{98}}{\cancel{30}_{15}}$

$= \frac{98}{15} = \frac{98}{15}$

$= 6\frac{8}{15} = 6\frac{8}{15}$

Hence proved L.H.S = R.H.S

R.W

2 | 6 , 5
3 | 3 , 5
5 | 1 , 51
  | 1 , 1

2 x 3 x 6 = 30

15) 98 (6
-90
8

7 $\frac{1}{2} + \left(\frac{2}{4} + \frac{5}{6}\right) = \left(\frac{1}{2} + \frac{2}{4}\right) + \frac{5}{6}$

Sol: $= \frac{1}{2} + \left(\frac{2}{4} + \frac{5}{6}\right) = \left(\frac{1}{2} + \frac{2}{4}\right) + \frac{5}{6}$

L.H.S = R.H.S

$= \frac{1}{2} + \left(\frac{(2x3)+(5x2)}{12}\right) = \left(\frac{(1x2)+(2x1)}{4}\right) + \frac{5}{6}$

$= \frac{1}{2} + \left(\frac{6+10}{12}\right) = \left(\frac{2+2}{4}\right) + \frac{5}{6}$

$= \frac{1}{2} + \frac{16}{12} = \left(\frac{4}{4}\right) + \frac{5}{6}$

$= \frac{1}{2} + \frac{16}{12} = \frac{4}{4} + \frac{5}{6}$

$= \frac{(1x6)+(16x1)}{12} = \frac{(4x3)+(5x2)}{4}$

$= \frac{6+16}{12} = \frac{12+10}{12}$

$= \frac{22}{12} = \frac{22}{12}$

$= 1\frac{10}{12} = 1\frac{10}{12}$

Hence proved L.H.S = R.H.S

R.W

2 | 4 , 6
2 | 2 , 3
3 | 1 , 3
  | 1 , 1

2 x 2 x 3 = 12

2 | 2 , 4
2 | 1 , 4
  | 1 , 1

2 x 2 = 4

2 | 2 , 12
2 | 1 , 6
3 | 1 , 3
  | 1 , 1

2 x 2 x 3 = 12

12) 22 (1
-12
10

8 $\left(\frac{7}{9}+\frac{5}{4}\right)+\frac{11}{3}=\frac{7}{9}+\left(\frac{5}{4}+\frac{11}{3}\right)$

Sol: $=\left(\frac{7}{9}+\frac{5}{4}\right)+\frac{11}{3}=\frac{7}{9}+\left(\frac{5}{4}+\frac{11}{3}\right)$

L.H.S = R.H.S

$=\left(\frac{(7x4)+(5x9)}{36}\right)+\frac{11}{3}=\frac{7}{6}+\left(\frac{(51x3)+(11x4)}{12}\right)$

$=\left(\frac{28+45}{36}\right)+\frac{11}{3}=\frac{7}{6}+\left(\frac{15+44}{12}\right)$

$=\frac{73}{36}+\frac{11}{3}=\frac{7}{9}+\frac{59}{12}$

$=\frac{(73x1)+(11x12)}{36}=\frac{(7x4)+(59x3)}{36}$

$=\frac{73+132}{36}=\frac{28+177}{36}$

$=\frac{205}{36}=\frac{205}{36}$

$=5\frac{25}{36}=5\frac{25}{36}$

Hence proved L.H.S = R.H.S

R.W

2	9 , 4
2	9 , 2
3	9 , 1
3	3 , 1
	1 , 1

2 x 2 x 3 x 3 = 36

2	4 , 3
2	2 , 3
3	1 , 3
	1 , 1

2 x 2 x 3 = 12

2	36 , 3
2	18 , 3
3	9 , 3
3	3 , 1
	1 , 1

2 x 2 x 3x3 = 36

2	9 , 12
2	9 , 6
3	9 , 3
3	3 , 1
	1 , 1

2 x 2 x 3x3 = 36

DIVISION FRACTIONS

We know that division is inverse of multiplication so that symbol (÷) is changed in ($\times$)

Example: $\frac{15}{3}\div\frac{20}{18}$

Solution: $\frac{15}{3}\times\frac{18}{20}=\frac{\cancel{15}^{3}}{\cancel{3}_{1}}\times\frac{\cancel{18}^{6}}{\cancel{20}_{2}}=\frac{3\times3}{2}=\frac{9}{2}$

Example: $3\frac{4}{7}\div7\frac{6}{7}$

Solution: $\frac{25}{7}\div\frac{55}{7}=\frac{25}{7}\times\frac{7}{55}=\frac{\cancel{15}^{5}}{\cancel{7}_{1}}\times\frac{\cancel{55}^{1}}{\cancel{7}_{11}}=\frac{5}{11}$

EXERCISE 3.8

Perform the division.

1 $\frac{18}{5}\div\frac{21}{25}$

Sol: $=\frac{18}{5}\div\frac{21}{25}=\frac{\cancel{18}^{6}}{\cancel{5}_{1}}\times\frac{\cancel{25}^{5}}{\cancel{21}_{7}}=\frac{6}{1}\times\frac{5}{7}=\frac{30}{7}=4\frac{2}{7}$ **Ans:**

$7\overline{)30}\ 4$, -28, 02

2 $60\div\frac{30}{9}$

Sol: $=60\div\frac{30}{9}=\frac{\cancel{60}^{2}}{1}\times\frac{9}{\cancel{30}_{1}}=\frac{18}{1}=18$ **Ans:**

3 $\frac{14}{7}\div2$

Sol: $=\frac{14}{7}\div2=\frac{14}{7}\div\frac{2}{1}=\frac{\cancel{14}^{7}}{7}\times\frac{1}{\cancel{2}_{1}}=\frac{7}{7}=1$ **Ans:**

4 $\frac{48}{7}\div\frac{12}{21}$

Sol: $=\frac{48}{7}\div\frac{12}{21}=\frac{\cancel{48}^{4}}{\cancel{7}_{1}}\times\frac{\cancel{21}^{3}}{\cancel{12}_{1}}=\frac{4}{1}\times\frac{3}{1}=\frac{12}{1}=12$ **Ans:**

5 $9\frac{5}{7} \div 4\frac{2}{9}$

Sol: $= 9\frac{5}{7} \div 4\frac{2}{9}$

$= \frac{68}{7} \div \frac{38}{9}$

$= \frac{{}^{34}\cancel{68}}{7} \times \frac{9}{\cancel{38}_{19}}$

$= \frac{34}{7} \times \frac{9}{19}$

$= \frac{306}{133}$

$= 2\frac{40}{133}$ **Ans:**

$\begin{array}{r} {}^{3}34 \\ \times 9 \\ \hline 306 \end{array}$

$\begin{array}{r} {}^{6}19 \\ \times 7 \\ \hline 133 \end{array}$

$133 \overline{)\,306\,} \; 2$

-266

40

6 $\frac{125}{21} \div \frac{25}{28}$

Sol: $= \frac{125}{21} \div \frac{25}{28}$

$= \frac{{}^{25}\cancel{125}}{\cancel{21}_{3}} \times \frac{\cancel{28}^{4}}{\cancel{25}_{5}}$

$= \frac{{}^{5}\cancel{25}}{3} \times \frac{4}{\cancel{5}_{1}}$

$= \frac{5}{3} \times \frac{4}{1}$

$= \frac{20}{3}$

$= 6\frac{2}{3}$ **Ans:**

$3 \overline{)\,20\,} \; 6$

-18

02

7 $5\frac{3}{5} \div 4\frac{1}{5}$

Sol: $= 5\frac{3}{5} \div 4\frac{1}{5}$

$= \frac{28}{5} \div \frac{21}{5}$

$= \frac{{}^{4}\cancel{28}}{\cancel{5}_{1}} \times \frac{\cancel{5}^{1}}{\cancel{21}_{3}}$

$= \frac{4}{1} \times \frac{1}{3}$

$= \frac{4}{3}$

$= 1\frac{1}{3}$ **Ans:**

$3 \overline{)\,4\,} \; 1$

-3

1

8 $\frac{6}{9} \div \frac{12}{18}$

$\frac{6}{9} \div \frac{12}{18}$

$= \frac{{}^{1}\cancel{6}}{\cancel{9}_{1}} \times \frac{\cancel{18}^{2}}{\cancel{12}_{2}}$

$= \frac{1}{1} \times \frac{2}{2}$

$= 1$ **Ans:**

9 $6\frac{3}{7} \div 4\frac{2}{7}$

Sol: $= 6\frac{3}{7} \div 4\frac{2}{7}$

$= \frac{45}{7} \times \frac{30}{7}$

$= \frac{{}^{15}\cancel{45}}{\cancel{7}_{1}} \times \frac{\cancel{30}^{1}}{\cancel{7}_{10}}$

$= \frac{{}^{3}\cancel{15}}{1} \times \frac{1}{\cancel{10}_{2}}$

$= \frac{3}{2} \times \frac{1}{2}$

$= \frac{3}{2}$

$= 1\frac{1}{2}$ **Ans:**

$3 \overline{)\,4\,} \; 1$

-3

1

10 $\frac{63}{72} \div \frac{45}{54}$

Sol: $= \frac{63}{72} \div \frac{45}{54}$

$= \frac{{}^{21}\cancel{63}}{\cancel{72}_{36}} \times \frac{\cancel{54}^{27}}{\cancel{45}_{15}}$

$= \frac{{}^{7}\cancel{21}}{\cancel{36}_{12}} \times \frac{\cancel{27}^{9}}{\cancel{15}_{5}}$

$= \frac{7}{\cancel{12}_{4}} \times \frac{\cancel{9}^{3}}{5}$

$= \frac{7}{4} \times \frac{3}{5}$

$= \frac{21}{20}$

$= 1\frac{1}{20}$ **Ans:**

$20 \overline{)\,21\,} \; 1$

-20

1

11 $\frac{4}{5} \div \frac{28}{25}$

Sol: $= \frac{4}{5} \div \frac{28}{25}$

$= \frac{{}^{2}\cancel{4}}{\cancel{5}_{1}} \times \frac{\cancel{25}^{5}}{\cancel{28}_{14}}$

$= \frac{{}^{1}\cancel{2}}{1} \times \frac{5}{\cancel{14}_{7}}$

$= \frac{{}^{1}\cancel{2}}{1} \times \frac{5}{\cancel{14}_{7}}$

$= \frac{5}{7}$ **Ans:**

12 $\frac{31}{32} \div \frac{93}{16}$

Sol: $= \frac{31}{32} \div \frac{93}{16}$

$= \frac{31}{32} \times \frac{93}{16}$

$= \frac{{}^{1}\cancel{31}}{\cancel{32}_{2}} \times \frac{\cancel{16}^{1}}{\cancel{93}_{3}}$

$= \frac{7}{\cancel{12}_{4}} \times \frac{\cancel{9}^{3}}{5}$

$= \frac{1}{6}$ **Ans:**

THE ADDITION SUBTRACTION, MULTIPLICATION AND DIVISION OF DAILY LIFE PROBLEMS ON THE BASE OF FRACTIONS

Akram completed $\frac{2}{7}$ a part work in one day, $\frac{3}{7}$ part work on second day and $\frac{1}{7}$ part work completed on third, find the completed work in three days.

Solution: Akram work on first day = $\frac{2}{7}$

on second day = $\frac{3}{7}$

on third day = $\frac{4}{7}$

Total work = $\frac{2}{7} + \frac{3}{7} + \frac{4}{7}$

= $\frac{2+3+4}{7}$

= $\frac{9}{7}$

(2) A pocket is filled with $\frac{6}{4}$ liter milk and second is filled with $\frac{2}{3}$ liter milk. Find the difference in both.

Milk in first pot = $\frac{6}{4}$

Milk in second pot = $\frac{2}{3}$

Difference = $\frac{6}{4} - \frac{2}{3}$

= $\frac{18-8}{12}$

Liters = $\frac{{}^{5}\cancel{10}}{{}_{6}\cancel{12}}$ = $\frac{5}{6}$

EXERCISE 3.9

1. The weight of a soap is $3\frac{7}{5}$ kilogram and the weight of other is $1\frac{1}{8}$ kilogram. Find the sum of both soaps.

Sol: Weight of a soap = $3\frac{7}{5}$

Weight of other soap = $1\frac{1}{8}$

Sum of both soap = ?

= $3\frac{7}{5} + 1\frac{1}{8}$

= $\frac{22}{5} + \frac{9}{8}$

= $\frac{(22x8)+(9x5)}{40}$

= $\frac{176+45}{40}$

= $\frac{221}{40}$

= $5\frac{21}{40}$

2	5 , 8
2	5 , 4
2	5 , 2
5	5 , 1
	1 , 1

2 x 2 x 2x5 = 40

$$40 \overline{)\,221\,} \quad 5,\ -200,\ 21$$

2. Nadia bought a rubbon of $3\frac{1}{4}$ meters, she gave her sister $1\frac{3}{8}$ metres of rubbon. How many meters of rubbon she aed.

Sol: Nadia bought ribbon = $3\frac{1}{4}$

Her sister gave ribbon = $1\frac{3}{8}$

Total ribbon she had = ?

= $3\frac{1}{4} + 1\frac{3}{8}$

= $\frac{13}{4} + \frac{11}{8}$

= $\frac{(13x2)+(11x1)}{8}$

= $\frac{26+11}{8}$

= $\frac{37}{8}$

= $4\frac{5}{8}$

2	4 , 8
2	2 , 4
2	1 , 2
	1 , 1

2 x 2 x 2 = 8

$$8 \overline{)\,37\,} \quad 4,\ -32,\ 5$$

3 A labour fetched $\frac{4}{6}$ litre of water on first day, $\frac{1}{3}$ litre on second day, and $1\frac{2}{4}$ litre on third day. Tell that how much total water did he fetched.

Sol:

First day labour fetched water = $\frac{4}{6}$ liter

Second day labour fetched water = $\frac{1}{3}$ liter

Third day labour fetched water = $1\frac{2}{4}$ liter

Total water = ?

$= \frac{4}{6} + \frac{1}{3} + 1\frac{2}{4}$

$= \frac{4}{6} + \frac{1}{3} + \frac{6}{4}$

$= \frac{(4x2) + (1x4) + (6x3)}{12}$

$= \frac{8 + 4 + 18}{12}$

$= \frac{{}^{15}\cancel{30}}{\cancel{12}_{6}} = \frac{{}^{5}\cancel{15}}{\cancel{6}_{2}}$

$= \frac{5}{2} = 2\frac{1}{2}$

2	6 , 3 , 4
2	3 , 3 , 2
3	3 , 3 , 1
	1 , 1 , 1

2 x 2 x 3 = 12

$$2\overline{)5}$$
$$-4$$
$$1$$

4 There is $3\frac{3}{4}$ liters of petrol in a shop the shopkeeper sold $\frac{3}{5}$ lite of petrol. How much petrol did the shopkeeper have?

Sol:

Petrol in a shop = $3\frac{3}{4}$

Petrol sold = $\frac{3}{5}$

Remaining petrol = ?

$= 3\frac{3}{4} + \frac{3}{5}$

$= \frac{15}{4} + \frac{3}{5}$

$= \frac{(15x5) + (3x4)}{20}$

$= \frac{87}{20}$

$= 4\frac{7}{25}$

2	4 , 5
2	2 , 5
5	1 , 5
	1 , 1

2 x 2 x 5 = 20

$$20\overline{)87}\ 4$$
$$-80$$
$$7$$

5 The multiplication of two fraction is $5\frac{1}{4}$. If one is $\frac{2}{5}$ then find the other fraction.

Sol:

Multiplication of two fraction = $5\frac{1}{4}$

One fraction = $\frac{2}{5}$

Other fraction = ?

$= 5\frac{1}{4} + \frac{2}{5}$

$= \frac{21}{4} + \frac{2}{5}$

$= \frac{(21x5) + (2x4)}{20}$

$= \frac{105 + 8}{20}$

$= \frac{113}{20}$

$= 5\frac{13}{20}$

2	4 , 5
2	2 , 5
5	1 , 5
	1 , 1

2 x 2 x 5 = 20

$$20\overline{)113}\ 5$$
$$-100$$
$$13$$

6 Danish bought 8 kilogram of sugar, he placed in 6 jars equal, find the weight of sugar in each jar.

Sol:

Weight of sugar = 8

Total jars of sugar = 6

Weight of sugar in each jar = ?

$= \frac{{}^{4}\cancel{8}}{\cancel{6}_{3}}$

$= \frac{4}{3}$

$= 1.33$

Ans: The weight of sugar in each jar = 1.33 kilogram.

NUMBER OF DECIMAL FRACTION

The numbers which are on right side of decimal of any number is called decimal numbers.

AS i 10.23 Here, two numbers are on right side of decimal.

ii 14.317 Here, Three numbers are on right side of decimal.

iii 15.0075 Here four numbers are on right side of decimal.

THE NUMBER PLACE IN DECIMAL FRACTION:

In decimal fraction, from right to left side of increasing of number becomes ten time greater while left to right side going to number, value decrease for ten time.

Hundred	Tens	Unit	Tenth	Hundredth	Thousandth	Number place
100	10	1	$\frac{1}{10}$ = 0.1	$\frac{1}{100}$ = 0.01	$\frac{1}{1000}$ = 0.001	

Example 1: Find the number place of 735.189

Hundred	Tens	Unit	Decimal	Tenth	Hundredth	Thousandth
7	3	5	.	1	8	9

Number place of = 700
Number place of = 5
Number place of = 0.08

Number place of = 30
Number place of = 0.1
Number place of = 0.009

Example: 2 Find the number place of 788.254

Hundred	Tens	Unit	Decimal	Tenth	Hundredth	Thousandth
7	8	8	.	2	5	4

Number place of = 700
Number place of = 8
Number place of = 0.05

Number place of = 80
Number place of = 0.2
Number place of = 0.004

TO CONVERT THE COMMON FRACTION INTO DECIMAL FRACTION:

Example (1) convert the $\frac{6}{10}$ into decimal fraction.

Solution: $\frac{6}{10}$ = 0.6

Example (2) Convert the $\frac{35}{100}$ into decimal fraction.

Solution: $\frac{35}{100}$ = 0.35

TO CONVERT THE DECIMAL FRACTION INTO COMMON FRACTION:

Example (1)

Convert 51.2 in Common fraction.

Solution $\frac{512}{10}$ = 51.2

Example (2)

Convert 4.35 in common fraction.

Solution = 4.35 = $\frac{435}{100}$

Example (3)

Convert 315.452 Into common fraction

Solution = 315.452 = $\frac{315452}{1000}$

Example (4)

convert 3.17 into common fraction

Solution 3.17 = $\frac{317}{100}$

IMPORTANT INFORMATION

- The number that is obtained by removing of decimal in decimal fraction is called nomenator.
- The number that is obtained by placing of zeros on the place of decimal number is called denominator.

EXERCISE 4.1

i **Find the place value of following number.**

1 **115 . 121**

Sol: = 115 . 121
1 = 100 , 1 = 0 . 1
1 = 10 , 2 = 0 . 02
5 = 5 , 1 = 0 . 001

2 **787 . 245**

Sol: = 787 . 245
7 = 700 , 2 = 0 . 2
8 = 80 , 4 = 0 . 04
7 = 5 , 7 = 0 . 005

3 **918 . 056**

Sol: = 918 . 056
9 = 900 , 0 = 0 . 0
1 = 80 , 5 = 0 . 05
7 = 7 , 6 = 0 . 006

4 **479 . 215**

Sol: = 479 . 215
4 = 400 , 2 = 0 . 2
7 = 90 , 1 = 0 . 01
9 = 9 , 5 = 0 . 005

5 **815 . 076**

Sol: = 815 . 076
8 = 800 , 0 = 0 . 0
1 = 10 , 7 = 0 . 07
5 = 5 , 6 = 0 . 006

6 **105 . 437**

Sol: = 105 . 437
1 = 100 , 4 = 0 . 4
0 = 00 , 3 = 0 . 00
5 = 5 , 5 = 0 . 007

7 **152 . 052**

Sol: = 152 . 052
1 = 100 , 0 = 0 . 0
5 = 50 , 7 = 0 . 05
2 = 2 , 6 = 0 . 002

8 **24 . 152**

Sol: = 24 . 152
2 = 20 , 1 = 0 . 1
4 = 4 , 5 = 0 . 05
0 = 0 , 2 = 0 . 002

ii Convert into common fractions.

1 **1.752**

Sol: $\frac{1752}{1000}$

2 **315.07**

Sol: $\frac{31507}{100}$

3 **592.4152**

Sol: $\frac{5924152}{10000}$

4 **715.235**

Sol: $\frac{715235}{1000}$

5 **45.002**

Sol: $\frac{45002}{1000}$

6 **398.347**

Sol: $\frac{398347}{1000}$

7 **315.415**

Sol: $\frac{315415}{1000}$

8 **219.195**

Sol: $\frac{219195}{1000}$

iii Convert the common fraction into decimal fractions.

1 $\frac{159}{100}$

Sol:
$$\begin{array}{r|l} & 1.59 \\ 100 & 159 \\ & -100 \\ \hline & 590 \\ & -500 \\ \hline & 900 \\ & -900 \\ \hline & 000 \end{array}$$

Ans: 1.59

2 $\frac{7}{10}$

Sol:
$$\begin{array}{r|l} & 0.7 \\ 10 & 70 \\ & -70 \\ \hline & 00 \end{array}$$

Ans: 0.7

3 $\frac{215}{1000}$

Sol:
$$\begin{array}{r|l} & 0.215 \\ 1000 & 2150 \\ & -2000 \\ \hline & 1500 \\ & -1000 \\ \hline & 5000 \\ & -5000 \\ \hline & 0000 \end{array}$$

Ans: 0.215

4 $\frac{1989}{100}$

Sol:
$$\begin{array}{r|l} & 19.89 \\ 100 & 1989 \\ & -100 \\ \hline & 989 \\ & -900 \\ \hline & 890 \\ & -800 \\ \hline & 900 \\ & -900 \\ \hline & 000 \end{array}$$

Ans: 19.89

5 $\frac{45}{1000}$

Sol:
$$\begin{array}{r|l} & 0.045 \\ 1000 & 4500 \\ & -4000 \\ \hline & 5000 \\ & -5000 \\ \hline & 0000 \end{array}$$

Ans: 0.045

6 $\frac{2}{10}$

Sol:
$$\begin{array}{r|l} & 0.2 \\ 10 & 20 \\ & -20 \\ \hline & 00 \end{array}$$

Ans: 0.2

ADDITION OF DECIMAL FRACTION

In addition, decimal is place under the decimal then digits are added by addition rules.

Example:

Solution:

$$\begin{array}{r} {\scriptstyle (1)} \\ 41.35 \\ +\ 3.075 \\ \hline 44.425 \end{array}$$

Example:

Solution:

$$\begin{array}{r} \\ 45.452 \\ +\ 31.512 \\ \hline 76.964 \end{array}$$

SUBTRACTION OF DECIMAL FRACTION

In subtraction of decimal, we set the number as number place values and decimal is placed under the decimal is placed under the decimal then process of subtracter is started.

Example (1) Solve 49.865-300277

Example: 49.865 – 30.277

Solution:

$$\begin{array}{r} {\scriptstyle (7)\ (15)(15)} \\ 49.865 \\ -\ 30.277 \\ \hline 19.588 \end{array}$$

Example (2) Solve 19.315-7.451

Example: 19.315 – 7.451

Solution:

$$\begin{array}{r} {\scriptstyle (8)\ (12)(11)} \\ 19.315 \\ -\ 7.451 \\ \hline 11.864 \end{array}$$

EXERCISE 4.2

i Add the following.

1 **0.345 + 4.895**

Sol:

$$\begin{array}{r} {\scriptstyle 3\ 2\ 1} \\ 0.345 \\ +\ 4.895 \\ \hline 5.240 \end{array}$$

2 **31.767 + 42.792**

Sol:

$$\begin{array}{r} {\scriptstyle 2\ 2\ 1} \\ 31.767 \\ +\ 42.792 \\ \hline 74.559 \end{array}$$

3 **898.12 + 13.450**

Sol:

$$\begin{array}{r} {\scriptstyle 1\ 1} \\ 898.12 \\ +\ 13.450 \\ \hline 911.462 \end{array}$$

4 **561.373 + 47.629**

Sol:

$$\begin{array}{r} {\scriptstyle 1\ 1\ 1\ 1} \\ 561.373 \\ +\ 47.629 \\ \hline 609.002 \end{array}$$

5 **921.326 + 67.521**

Sol:

$$\begin{array}{r} 921.326 \\ +\ 67\ .521 \\ \hline 988.847 \end{array}$$

6 **28.12 + 6.397**

Sol:

$$\begin{array}{r} 28.12 \\ +\ 6.397 \\ \hline 34.517 \end{array}$$

7 **433.032 + 973.129**

Sol:

$$\begin{array}{r} 433.032 \\ +\ 973.129 \\ \hline 1406.161 \end{array}$$

8 **3.24 + 642.12**

Sol:

$$\begin{array}{r} 642.12 \\ +\ 3.24 \\ \hline 645.36 \end{array}$$

9 **429.972 + 4.593**

Sol:

$$\begin{array}{r} 429.972 \\ +\ 4.593 \\ \hline 434.565 \end{array}$$

10 **42.73 + 82.14**

Sol:

$$\begin{array}{r} 42.73 \\ +82.14 \\ \hline 124.87 \end{array}$$

11 **0.315 + 4.752**

Sol:

$$\begin{array}{r} 0.315 \\ +\ 4.752 \\ \hline 5.067 \end{array}$$

12 **4.152 + 1.249**

Sol:

$$\begin{array}{r} 4.152 \\ +1.249 \\ \hline 5.401 \end{array}$$

ii Subtract the following.

1 **737.42 – 439.432**

Sol:

$$\begin{array}{r} 737.420 \\ -439.432 \\ \hline 297.988 \end{array}$$

2 **4.5 – 0.004**

Sol:

$$\begin{array}{r} 4.500 \\ -0.004 \\ \hline 4.496 \end{array}$$

3 **910.66 – 349.2**

Sol:

$$\begin{array}{r} 910.66 \\ -349.20 \\ \hline 561.46 \end{array}$$

4 **99.793 – 66.679**

Sol:

$$\begin{array}{r} 99.793 \\ -66.676 \\ \hline 33.117 \end{array}$$

5 **464.12 – 293.699**

Sol:
464.120
-293.699
170.421

6 **59.398 – 55.291**

Sol:
59.398
-55.291
4.107

7 **67.24 – 25.68**

Sol:
67.24
-25.68
41.56

8 **87.25 – 76.01**

Sol:
87.25
-76.01
11.24

9 **5.9 – 0.04**

Sol:
5.9
-0.04
4.86

10 **463.5 – 293.782**

Sol:
463.500
-293.782
169.718

11 **.488 – 0.371**

Sol:
0.488
-0.371
0.117

12 **7.452 – 0.572**

Sol:
7.452
0.572
6.880

MULTIPLICATION OF DECIMAL FRACTION

The multiplication of decimal fraction is obtained as the multiplication of natural numbers. But Numbers from the right side of decimal are counted and decimal of multiplication is placed in the sum of digits in answer.

IMPORTANT INFORMATION

Decimal of multiplication is placed in the same digits of given numbers from right side of digits

Example 2: Multiply 7 with 2.932.

2.932
× 7
6.424

Example 1: Multiply 5 with 5.452

5.452
× 5
27.260

EXERCISE 3.6

Solve the following

1 **24.452 × 7**

Sol:
24.452
× 7
171.164

2 **15.025 × 6**

Sol:
15.025
× 6
90.15

3 **1.375 × 9**

Sol:
1.375
×9
12.375

4 **2.340 × 2**

Sol:
2.340
× 2
4.680

5 **3.254 × 5**

Sol:
3.254
×5
16.270

6 **70.06 × 8**

Sol:
70.06
× 8
56.48

7 **7.03 × 4**

Sol:
7.03
×4
28.12

8 **542.30 × 7**

Sol:
542.30
× 7
3796.10

9 **0.979 × 3**

Sol:
$$\begin{array}{r} 0.979 \\ \times\ 3 \\ \hline 2.937 \end{array}$$

10 **83.45 × 8**

Sol:
$$\begin{array}{r} 83.45 \\ \times\ 8 \\ \hline 66.760 \end{array}$$

11 **192.25 × 8**

Sol:
$$\begin{array}{r} 192.25 \\ \times\ 8 \\ \hline 156.800 \end{array}$$

12 **71.25 × 2**

Sol:
$$\begin{array}{r} 71.25 \\ \times\ 2 \\ \hline 141.50 \end{array}$$

13 **84.42 × 6**

Sol:
$$\begin{array}{r} 84.42 \\ \times\ 6 \\ \hline 586.52 \end{array}$$

14 **19.25 × 8**

Sol:
$$\begin{array}{r} 19.25 \\ \times\ 8 \\ \hline 154.00 \end{array}$$

15 **70.07 × 4**

Sol:
$$\begin{array}{r} 70.07 \\ \times\ 4 \\ \hline 280.28 \end{array}$$

DIVISION OF DECIMAL FRACTION

The function of division in decimal fraction is obtained as the natural Number system.

IMPORTANT INFORMATION

In division of decimal fraction, decimal is placed after the division of decimal digits.

Example 1

Divide 931,278 by 6

$$\begin{array}{r|l} & 155.213 \\ \hline 6 & 931.278 \\ & 6 \\ \hline & 33 \\ & 30 \\ \hline & 31 \\ & 30 \\ \hline & 12 \\ & 12 \\ \hline & 7 \\ & 6 \\ \hline & 18 \\ & 18 \\ \hline & 0 \end{array}$$

then 931.278 ÷ 6 = 155.213

Example 2

Divide 432.8 by 4

$$\begin{array}{r|l} & 108.2 \\ \hline 4 & 432.8 \\ & 4 \\ \hline & 32 \\ & 32 \\ \hline & .8 \\ & .8 \\ \hline & 0 \end{array}$$

then 432.8 ÷ 2 = 108.2

EXERCISE 4.4

Solve:

1 **176.60 ÷ 5**

$$\begin{array}{r|l} & 35.32 \\ \hline 5 & 176.60 \\ & -15 \\ \hline & 26 \\ & -25 \\ \hline & 16 \\ & -15 \\ \hline & 10 \\ & -10 \\ \hline & 0 \end{array}$$

Ans: 35.32

2 2481.9 ÷ 3

$$\begin{array}{r|l} & 8.273 \\ \hline 3 & 2481.9 \\ & -24 \\ \hline & 008 \\ & -6 \\ \hline & 21 \\ & -21 \\ \hline & 009 \\ & -9 \\ \hline & 0 \end{array}$$

Ans: 8.273

3 **963.45 ÷ 9**

```
      107.05
   9 | 963.45
     -90
      63
     -63
      45
     -45
       00
```

Ans: 17.5

4 **2567.8 ÷ 2**

```
      1283.9
   2 | 2567.8
     -2
      5
     -4
      16
     -16
       7
      -6
       18
      -18
        00
```

Ans: 1283.9

5 **878.4 ÷ 8**

```
      109.8
   8 | 878.4
     -80
      78
     -72
      64
     -64
       00
```

Ans: 109.8

6 **24.48 ÷ 8**

```
      3.06
   8 | 24.48
     -24
      xx48
      -48
       00
```

Ans: 3.06

7 **912.36 ÷ 6**

```
      152.06
   6 | 912.36
     -6
      31
     -30
      12
     -12
      0036
      -36
       00
```

Ans: 152.06

8 **4.722 ÷ 3**

```
      1.574
   3 | 4.722
     -3
      17
     -15
      22
      21
      12
     -12
      00
```

Ans: 1.574

9 **0.0072 ÷ 8**

```
      0.0009
   8 | 0.0072
     0.0072
     00000
```

Ans: 0.0009

10 **18927.81 ÷ 9**

```
      2103.09
   9 | 18927.81
     -18
      92
     -90
      27
     -27
      81
     -81
       00
```

Ans: 2103.09

11 4.44 ÷ 2

```
      2.22
   2 | 4.44
     -4
      4
     -4
      4
     -4
      0
```

Ans: 2.22

12 81.90 ÷ 9

```
      9.10
   9 | 81.90
     -81
      90
     -90
      00
```

Ans: 9.10

13 72.24 ÷ 3

```
      24.08
   3 | 72.24
     -6
      12
     -12
      24
     -24
      00
```

Ans: 24.08

14 15.25 ÷ 5

```
      3.05
   5 | 15.25
     -15
      25
     -25
      00
```

Ans: 3.05

15 910.8 ÷ 3

```
      303.6
   3 | 910.8
     -90
      10
     -9
      18
     -18
      00
```

Ans: 303.6

NUMERICALS ON DECIMAL FRACTION:

Example: Ali bought a book of Rs. 15.75 and open of Rs 12.95.

How many rupees he had spent?

Solution:

Cost of book	Rs:	15.75	=	15 . 75
Cost of Pen	Rs:	12.95	=	+ 12 . 70
Total Cost	Rs:	28.70	=	28 . 70

Example: Alia made 8 suits from 48.8 meter of cloth.

Solution:

Cost of book	Rs:	48.8	=	6.1
Cost of Pen	Rs:	8	=	8 ⟌ 48.8
Per Suits	Rs:	48.8 ÷ 8	=	48
Total Cost	Rs:	6.1	=	8
				8
				0

Example: The cost of a kilo gram of rice is 182.95 rupees. Find the cost of 5 kilogram of rice.

Solution:

Cost of a kilogram	182.95	
Cost of a 5 kilogram	182.95	× 5
Total cost	914.75	

EXERCISE 3.6

1. Khalid bought a book of Rs 35.75, a pencil of Rs 18.12 and four pens are of Rs = 39.67.How much rupees did he spent?

Sol:

Price of a book	=	Rs: 35.75
Price of a pencil	=	Rs: 18.12
Price of pens	=	Rs: 39.67
Total rupees	=	Rs: 93.54

Ans: Khalid had spend = Rs: 93.54

2. Nadia, bought a book of Rs 89.75, she gave a note of 100 to shopkeeper. How many rupees shopkeeper returned to her?

Sol:

Nadia bought a book	=	Rs: 89.75
She gave to the shopkeeper	=	Rs: 100
Remaining amount	=	?

$$\begin{array}{r} 100.00 \\ -\ 89.75 \\ \hline 10.25 \end{array}$$

Ans: Remaining amount = 10.25

3. What number should added in 4.582 to get 5.

$$\begin{array}{r} 5.000 \\ -4.582 \\ \hline 0.418 \end{array}$$

4. The cost of dozen of banana is Rs 96.65. What will be the cost of 6 dozen of banana?

Sol:

The cost of dozen banana	=	Rs: 96.65
We know that 1 dozen	=	Rs: 12
Since the cost of 1 banana	=	Rs: 8.054166
Total rupees	=	Rs: 93.54

$$\begin{array}{r} 8.054166 \\ 12 \overline{)\ 96.65} \\ -96 \\ \hline 65 \\ -60 \\ \hline 50 \\ -48 \\ \hline 20 \\ -12 \\ \hline 80 \\ -72 \\ \hline 80 \\ -72 \\ \hline 8 \end{array}$$

$$\begin{array}{r} 8.054166 \\ \times\ 6 \\ \hline 48.324996 \end{array}$$

So, the cost of 6 banana is = Rs: 48.324996

5 The price of 8 oranges is Rs 75.64. What will be the price of an orange?

Sol: The price of 6 oranges = Rs: 75.64
The price of an orange = Rs: ?

```
      9.455
12 | 75.64
   -72
    36
   -32
     44
   -40
     40
   -40
     00
```

Ans: The price of an orange is 9.455

6 Length of a rope is 41.5. It is distributed in two parts. It the length of one part is 27.6 then what will be the length of second part?

Sol: Length of a rope = Rs: 41.5
Length of one side = Rs: 27.6
Length of other side = ?

```
  41.5
 -27.6
 ----
  13.9
```

Ans: The length of second part of a rope is 13.9.

7 Weight of a book is 11.95 grams and weight of other book is 9.27 grams. Tell which book is heavier and how much weight is more?

Sol: Weight of one book = Rs: 11.95 gram.
Weight of another book = Rs: 9.27 grams.
Difference of these books = ?

```
  11.95
 -9.27
 -----
  2.68
```

Ans: Book one is 2.68 grams heavier than other book.

8 The cost of five hens is 1225.25 rupees. What well be the price of a hen.

Sol: The cost of five hens = Rs: 1225.25 rupees.
The cost of a hen = Rs: ?

```
      245.05
5 | 1225.25
   -10
    22
   -20
     25
   -25
     00
```

Ans: The cost of a hen is Rs: = 245.05

9 A wooden block is 52.30 m long and other is 48.372 m long. How many meters first wooden long is?

Sol: Length of one block is = Rs: 52.30 m
Length of other block is = Rs: 48.372 m
Difference of both block is = ?

```
  52.300 m
-48.372 m
---------
   3.928 m
```

Ans: First wooden block is 3.928 m longer than other wooden block.

10 Umar had 180.75 rupees. He bought 5 books from these. Find the price of a book.

Sol: The cost of five books = Rs: 180.75
The cost of a book = Rs: ?

```
      36.15
5 | 180.75
   -15
    37
   -30
     7
    -5
    25
   -25
     00
```

Ans: The cost of a book = Rs: 36.15

11 A women bought a ring of Rs:10.35, bangles of Rs:50.25 and ear rings of Rs.121.32. How many rupees did she paid to the gold smith?

Sol:
The price of a ring	= Rs: 170.35
The price of bangles	= Rs: 50.25
The price of ear rings	= Rs: 121.32
Total price	= Rs: 341.92

Ans: She paid Rs: 341.92 rupees to the gold smith.

12 The cost of a pencil is Rs 10.75, What price will be of 8 pencils?

Sol:
The cost of a pencil is	= Rs: 41.5
The cost of 8 pencils	= ?

$$\begin{array}{r} 10.75 \\ \times\ 8 \\ \hline 86.00 \end{array}$$

Ans: The cost of 8 pencil is 86.00.

MEASUREMENT

The unit of length or distance in decimal system is "meter" and the biggest Unit of length is "kilometer"

UNITS OF LENGTH

1 kilometer	=	1000	meter	1 meter	=	100	centimeter
1 meter	=	10	decimeter	1 centi meter	=	10	millimeter

IMPORTANT INFORMATION

- The time of conversion of small units into big units, the small units are divided by big units.
- At the time of conversion of big units into small units, the big units are multiplied by small units.

Example (1) convert the 4 kilo meter into meters.

1 = 1000

4 = 4 × 1000 = 4000

Example 2: Convert the 16 cm and 6 multi meter into milli meter.

1 = 10

16 × 10 = 16

160 =

160 + 8 = 16 8

168 =

ADDITION OF UNITS OF LENGTH

The addition of decimal fraction is obtained as the rule of natural numbers addition. Meters are added with meter, centimeter with centimeter and kilo meter with kilo meter.

Example: Add, 15 kilometer, 30 meters and 95 Centi meter with 16 km, 16 m and 67 cm.

Kilo meter	meters	centi meter
15	30	95
+ 16	16	67
31	47	62

Example 2 Add: 631 km, 68 m, 4 with 480 km, 72 m.

Kilo meter	meter
631	68
+ 480	72
1112	40

EXERCISE 5.1

i Convert the kilometer into meter.

1 1455 km

Sol: We know that:
1 km = 1000 m.

Then: 1455 x 1000
= 1455000 m **Ans:**

R.W

1455
x 1000
0000
0000x
0000xx
1455xxx
1455000

2 135 km

Sol: We know that:
1 km = 1000 m.

Then: 135 x 1000
= 135000 m **Ans:**

R.W

1000
x135
5000
30000x
+1000xx
135000

3 479 km and 15 m

Sol: We know that:
1 km = 1000 m.

Then: 479 x 1000
= 479000 m **Ans:**

R.W

1000
x479
9000
7000x
+4000xx
479000

Now add the 479000 m and 15 m

47000 m
+ 15 m
47015 m

4 315 km and 20 m

Sol: We know that:
1 km = 1000 m.

Then: 315 x 1000
= 315000 m **Ans:**

R.W

1000
x351
1000
5000x
+3000xx
351000

Now add the 351000 m and 20 m

315000 m
+ 20 m
315020 m

5 415 km and 30 m

Sol: We know that:
1 km = 1000 m.

Then: 415 x 1000
= 415000 m **Ans:**

R.W

1000
x415
5000
1000x
4000xx
451000 m

Now add the 415000 m and 30 m

415000 m
+ 30 m
415030 m

6 29 km and 71 m

Sol: We know that:
1 km = 1000 m.

Then: 29 x 1000
= 29000 m **Ans:**

R.W

1000
x29
9000
2000x
29000 m

Now add the 2900 m and 71 m

29000 m
+ 71 m
29071 m

ii Convert the centi meters into meters.

1 491 cm

Sol: We know that 1 km = 100 cm.
Then, divide the 471 by 100.

```
      47.1
100 | 471
    -400
      710
    -700
       100
      -100
       000
```

Ans: 491cm = 47.1m

2 810 cm

Sol: We know that 1 km = 100 cm.
Then, divide the 810 by 100.

```
      8.1
100 | 810
    -800
       100
      -100
       000
```

Ans: 810 cm = 8.1 m.

3 555 cm

Sol: We know that 1 km = 100 cm.
Then, divide the 555 by 100.

```
      5.55
100 | 555
    -500
      550
    -500
       500
      -500
       000
```

Ans: 555 cm = 5.55 m.

4 171 cm

Sol: We know that 1 km = 100 cm.
Then, divide the 171 by 100.

```
      1.71
100 | 171
    -100
      710
    -700
       100
      -100
       000
```

Ans: 171 cm = 1.71 m

5 900 cm

Sol: We know that 1 km = 100 cm.
Then, divide the 900 by 100.

```
      9
100 | 900
    -900
       000
```

Ans: 900 cm = 9 m

6 771 cm

Sol: We know that 1 km = 100 cm.
Then, divide the 771 by 100.

```
      7.71
100 | 771
    -700
      710
    -700
       100
      -100
       000
```

Ans: 771 cm = 7.71 m

iii Convert into millimeters.

1 7 cm and 6 mm

Sol: We know that 1 km = 10 mm.
Then, multiply 7 by 10.

= 7 x 10
= 70 mm

R.W

10
x 7
70

Now add 10 mm and 6mm

70 mm
+ 6mm
76 mm

Ans: 7 cm and 66 mm = 76 mm

2 10 cm and 7 mm

Sol: We know that 1 km = 10 mm.
Then, multiply 10 by 10.

= 10 x 10
= 10 mm

Now add 100 mm and 7mm

100 mm
+ 7mm
107 mm

Ans: 10 cm and 7 mm = 107 mm

3 8 cm and 2 mm

Sol: We know that 1 km = 10 mm.
Then, multiply 8 by 10.

= 8 x 10
= 80 mm

R.W

10
x 8
80

Now add 80 mm and 2mm

80 mm
+ 2 mm
82 mm

Ans: 8 cm and 2 mm = 82 mm

4 15 cm and 3 mm

Sol: We know that 1 km = 10 mm.
Then, multiply 15 by 10.

= 15 x 10
= 150 mm

R.W

15
x 10
00
+15x
150

Now add 150 mm and 3 mm

150 mm
+ 3 mm
153 mm

Ans: 15cm and 3 mm = 153mm

5 16 cm and 3 mm

Sol: We know that 1 km = 10 mm.
Then, multiply 16 by 10.

= 16x 10
= 160 mm

Now add 160 mm and 2mm

160 mm
+ 3 mm
163 mm

Ans: 16 cm and 3 mm = 163 mm

6 17 cm and 4 mm

Sol: We know that 1 km = 10 mm.
Then, multiply 17 by 10.

= 17 x 10
= 170 mm

R.W

17
x 10
00
+17x
170

Now add 170 mm and 4 mm

170 mm
+ 4 mm
174 mm

Ans: 17 cm and 4 mm = 174 mm

iv Add the following:

1 4 m and 45 cm with 9 m and 15 m

Sol:
4 m : 45 cm
+9 m : 15 cm
13 m : 60 cm

2 95 km and 67 meter with 67 km and 19 meters.

Sol:
95 km : 67 m
+67 km : 19 m
162 km : 68 m

R.W

37
x 97
134

3 95 km, 67 meter with 67 km and 19 meters.

Sol:
95 km : 67 cm
+67 km : 19 cm
162 km : 86 cm

4 2 km, 800 m and 19 cm with 11km, 415 m and 29 cm

Sol:
12 km : 800 m : 19 cm
+11 km : 415 m : 29 cm
24 km : 215 m : 48 cm

5 66 m, 55 cm and 11 mm with 87 m, 45 cm and 12 mm

Sol:
66 m : 55 m : 11 cm
+87 m : 45 m : 12 cm
153 m : 100 m : 23 cm

6 13 km and 820 m with 26 km and 797 m.

Sol:
13 m : 820 cm
+26 m : 797 cm
40 m : 617 cm

7 4 m and 64 cm with 2 m and 86 cm

Sol:
4 m : 64 cm
+2 m : 86 cm
7 m : 50 cm

8 **29 km and 95 m with 159 km and 72 m.**

Sol:

29 km	95 m
+159 km	72 m
188 km	167 m

Subtraction of units of length:

The subtraction of decimal number of length is obtained as the subtractory natural number. Kilometers are subtracted from kilo meter, meters from meters and centi meters from centimeter.

Example: (1) Subtract 9 km and 11m from 12 km and 13 m.

Kilometer	meter
12	13
– 9	11
3	02

then 3 km and 2 m.

Example 2: Subtract 632 km and 40 m to

Solution km	meter
632	40
– 321	95
310	45

EXERCISE 5.2

Subtract:

1 **61 m and 4 dm from 70 m and 15 dm.**

Sol:

70 m	15 dm
-61 m	4 dm
9 m	11 dm

2 **7 km and 45 m from 9 km and 50 m.**

Sol:

9 km	50 m
-7 km	45 m
2 km	5 m

3 **7 m and 3 cm to 3 m and 7 cm.**

Sol:

7 m	3 cm
-3 m	7 cm
3 m	96 cm

(: 1m = 100 cm)

4 **29 km and 78 m from 37 km and 92 m.**

Sol:

37 km	92 m
-29 km	78 m
6 km	14 m

5 **28 km and 4 m from 35 km and 5 m.**

Sol:

35 km	5 cm
28 km	4 cm
07 km	1 cm

6 **6 cm and 9 mm from 8 cm and 10 mm.**

Sol:

8 cm	10 mm
-26 cm	9 mm
2 cm	1 mm

7 **302 cm and 19 mm from 424 cm and 28 mm.**

Sol:

424 cm	28 cm
-302 cm	19 cm
122 cm	9 cm

8 **4m, 6 dm, and 3 cm from 8m, 4dm and 5 cm.**

Sol:

8 m	4 dm	5 cm
-4 m	6 dm	3 cm
3 m	8 dm	2 cm

9 **238 km and 68 m from 615 km and 98 m.**

Sol:

615 km	98 cm
-238 km	68 cm
377 km	30 cm

10 **199 km and 3m from 380 km and 33 m.**

Sol:

380 km	33 m
-199 km	35 m
180 km	998 m

11 **370 km and 29 m from 380 km and 93 m.**

Sol:

380 km	93 cm
-370 km	29 cm
10 km	64 cm

12 **950 km and 73m to 250 km and 18m.**

Sol:

950 km	73 m
-250 km	18 m
700 km	55 m

13 **875 km and 71 m to 670 km and 51 m.**

Sol:

875 km	71 mm
-570 km	51 mm
305 km	20 mm

14 **655 km and 65 m to 110 km and 9m.**

Sol:

655 km	65 m
-110 km	9 m
545 km	56 m

Measurement of mass

The unit of mass of object is kilo gram, Gram is smaller unit of mass and kilogram is biggest unit of mass.

Addition of units of mass.

At the time of addition, kilogram is added with kilogram while gram is added with grams.

Example (1) Add 125 kg and 75 gram with 72 kg and 84 gram.

Kilograms	grams
125	75
+905	29
1031	04

Then 1020 kg and 104 gram.

Example - Add 36 kg and 87 gram with 72 kg and 84 gram.

Kilograms	grams
36	87
+ 72	84
109	71

EXERCISE 5.3

Add the following:

1 **37 kg and 44 grams with 24 kg and 15 grams.**

Sol:
38 kg : 44 grams
+24 kg : 15 grams
62 kg : 59 grams

2 **217 kg and 39 gram with 105 kg and 810 grams.**

Sol:
217 kg : 39 grams
+105 kg : 32 grams
322 kg : 71 grams

3 **535 kg and 10 grams with 84 kg and 12 grams.**

Sol:
535 kg : 10 gm
+84 kg : 25 gm
619 kg : 25 gm

4 **16 kg and 700 grams with 23 kg and 810 grams.**

Sol:
16 kg : 700 grams
+23 kg : 810 grams
40 kg : 510 grams

5 **15 kg and 75 grams with 22 kg and 219 grams.**

Sol:
15 kg : 75 grams
+22 kg : 219 grams
37 kg : 294 grams

6 **7 kg and 36 grams with 8 kg and 72 grams.**

Sol:
7 kg : 36 grams
+8 kg : 72 grams
15 kg : 108 grams

7 **36 kg and 740 grams with 92 kg and 900 grams.**

Sol:
36 kg : 740 grams
+92 kg : 900 grams
129 kg : 640 grams

8 **16 kg and 860 grams with 97 kg and 167 grams.**

Sol:
16 kg : 860 grams
+97 kg : 167 grams
114 kg : 27 grams

9 **370 kg and 29 grams with 511 kg and 35 grams.**

Sol:
370 kg : 29 grams
+511 kg : 35 grams
881 kg : 64 grams

10 **84 kg and 87 grams with 50 kg and 88 grams.**

Sol:
84 kg : 87 grams
+50 kg : 88grams
134 kg : 175 grams

11 **429 kg and 31 grams with 609 kg and 15 grams.**

Sol:
429 kg : 31 grams
+609 kg : 15 grams
1030 kg : 46 grams

12 **94 kg and 51 grams with 29 kg and 75 grams.**

Sol:
94 kg : 51 grams
+29 kg : 75 grams
123 kg : 126 grams

13 **517 kg and 75 grams with 219 kg and 10 grams.**

Sol:
517 kg : 75 grams
+219 kg : 10 grams
438 kg : 85 grams

14 **95 kg and 52 grams with 19 kg and 25 grams.**

Sol:
95 kg : 52 grams
+19 kg : 25 grams
114 kg : 77 grams

Subtraction of units of mass.

The subtraction of units of mass is obtained as subtraction of natural number, kilogram is subtracted from kilogram and grams are subtracted from grams.

Example:

Kilograms	grams
875	81
− 537	35
338	48

Example(2) 316 kg and 23 grams from 437 kg and 44 grams.

Kilograms	grams
437	44
− 316	23
121	21

Then 121 kg and 21 grams.

EXERCISE 5.4

Perform the subtraction.

1 **55 kg and 83 grams to 37 kg and 88 grams.**

Sol:
55 kg : 83 grams
-37 kg : 88 grams
17 kg : 995 grams

2 **53 kg and 31 grams to 45 kg and 29 grams.**

Sol:
53 kg : 31 grams
-45 kg : 29 grams
8 kg : 2 grams

3 **361 kg and 15 grams to 209 kg and 15 grams.**

Sol:
361 kg : 15 grams
-209 kg : 14 grams
17 kg : 01 grams

4 **17 kg and 33 grams to 16 kg and 22 grams.**

Sol:
17 kg : 33 grams
-16 kg : 22 grams
1 kg : 11 grams

5 **16 kg and 45 grams to 13 kg and 75 grams.**

Sol:
16 kg : 45 grams
-13 kg : 75 grams
2kg : 970 grams

6 **29 kg and 37 gram from 45 kg and 63 grams.**

Sol:
45 kg : 63 grams
-29 kg : 37 grams
16 kg : 26 grams

7 **29 kg and 613 grams from 35 kg and 287 grams.**

Sol:
35 kg : 287 grams
-29 kg : 613 grams
5 kg : 674 grams

8 **69 kg and 495 grams from 87 kg and 900 grams.**

Sol:
87 kg : 900 grams
-69 kg : 495 grams
18 kg : 405 grams

9 **729 kg and 21 gram from 972 kg and 41 grams.**

Sol:
972 kg : 41 grams
-729 kg : 21 grams
243 kg : 20 grams

10 **29 kg and 800 grams from 85 kg and 715 grams.**

Sol:
85 kg : 715 grams
-29 kg : 800 grams
56 kg : 915 grams

Addition of units of volume.

The units of volume is leter while its saller unit is milli liter.

1 liter = **1000** milli liter

Addition of Units

An addition of units of volume. Liters are added with liters and milli liters are added with liters.

Example (1) Add = 15 liters and 415 ml with 45 l and 210 ml.

Liter	milli leter
15	415
+ 45	210
60	625

Example (2) Add: 75 l and 60 ml with 51 and 307 ml.

Liter	milli leter
75	560
+ 51	307
126	867

Subtraction of units of volume.

In subtraction of volume liter is subtracted of liter and milli liter are Subtrated from milli liter.

Example: Subtract 95 l and 875 ml from 117 l and 734 ml.

	L	ml
	117	734
–	95	875
	21	859

Example (2) 37 l and 588 ml from 76 l and 376 ml.

	L	ml
	76	376
–	37	588
	38	788

EXERCISE 5.5

Add the following.

1 35 l and 785 ml with 36 l and 400 ml.

Sol:
35 L : 785 ml
+36 L : 400 ml
72 L : 185 ml

2 11 l and 307 ml with 56 l and 60 ml.

Sol:
11 L : 307 ml
+56 L : 560 ml
67 L : 867 ml

3 95 l and 210 ml with 75 l and 559 ml

Sol:
95 L : 210 ml
+75 L : 559 ml
170 L : 769 ml

4 33 l and 221 ml with 37 l and 537 ml

Sol:
33 L : 221 ml
+37 L : 537 ml
70 L : 758 ml

5 51 l and 700 ml with 62 l and 677 ml

Sol:
51 L : 700 ml
+62 L : 677 ml
11 L : 377 ml

6 67 l and 751 ml with 29 l and 715 ml

Sol:
67 L : 675 ml
+27 L : 987 ml
95 L : 662 ml

7 19 l and 751 ml with 66 l and 890 ml

Sol:
19 L : 751 ml
+29 L : 715 ml
49 L : 466 ml

8 17 l and 677 ml with 66 l and 890 ml

Sol:
17 L : 677 ml
+66 L : 890 ml
84 L : 567 ml

Perform the subtraction.

1 2 l and 450 ml from 6 l and 325 ml

Sol:
6 L : 325 ml
-2 L : 450 ml
3 L : 875 ml

2 75 l and 35 ml from 86 l and 779 ml

Sol:
86 L : 779 ml
-75 L : 35 ml
11 L : 744 ml

3 89 l and 519 to 62 and 779 ml

Sol:
89 L : 519 ml
-62 L : 779 ml
27 L : 740 ml

4 60 l and 200 lm to 40 l and 519 ml

Sol:
60 L : 200 ml
-40 L : 519 ml
19 L : 981 ml

5 14 l and 72 ml to 9 l and 820 ml

Sol:
14 L : 728 ml
-9 L : 820 ml
4 L : 908 ml

6 29 l and 642 ml to 14 l and 964 ml

Sol:
25 L : 642 ml
-14 L : 964 ml
10 L : 678 ml

7 3 l and 27 ml from 7 l and 25 ml

Sol:
7 L : 25 ml
-3 L : 27 ml
3L : 998 ml

8 14 l and 415 ml from 41 l and 31 ml.

Sol:
41 L : 31 ml
-14 L : 415 ml
26 L : 616 ml

GEOMETRY:

Definitions:

(1) Point:

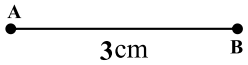
Such shortest sign having no length and width is called point.

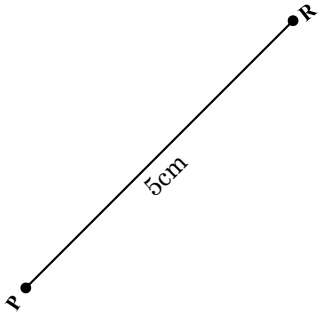
(2) Line Segment:

The group of points having no face but have two tail from both ends is called line segment.

For example:

(I)

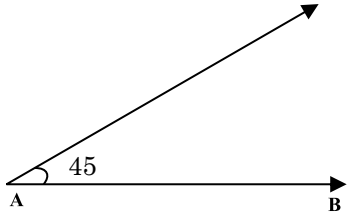




(3) Angle:

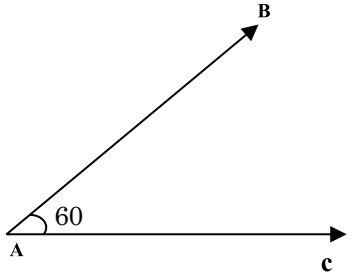
An angle is the union of two rays.

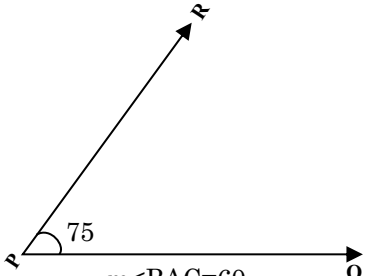
For example: <ABC:



(4) Acute Angle:

Such angle whose measurement is less than 90° is called aute angle.



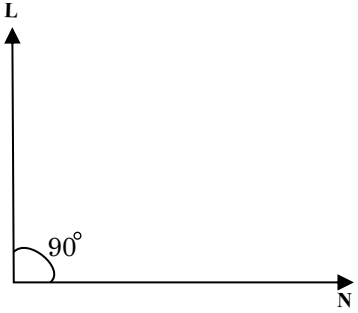


m<BAC=60
m<PQR=75

(5) Right angle:

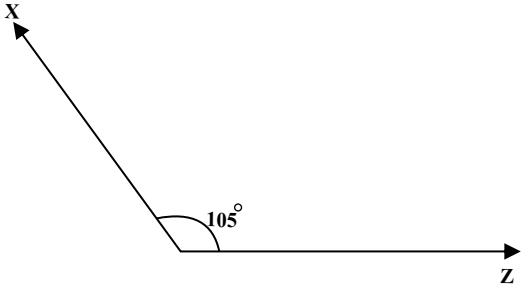
Such angle whose measurement is y 90° is called right angle

M<LMN=90°



(6) Obtuse angle:

Such angle whose measurement is greater than 90° and less than 180° is 90° is called obtuse angle

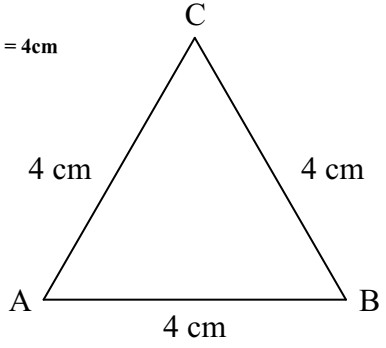


mLXYZ=105

(6) Equilateral triangle or equal sides triangle:

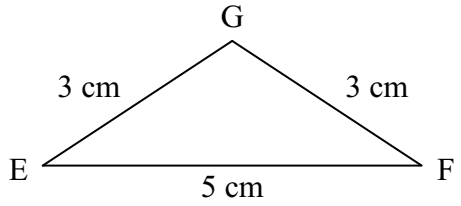
Such triangle whose three sides are same in measurement, is called equilateral triangle or equal sides triangle. Here ABC is equilateral triangle.

$m\overline{AB} = m\ \overline{BC} = m\ \overline{AC}$ = 4cm



(8) Isosceles Triangle:

Such triangle whose a pair of sides and a pair of angles is congrent is called Isosceles Triangle.
Here $\triangle$ **EFG** is isosceles triangle.

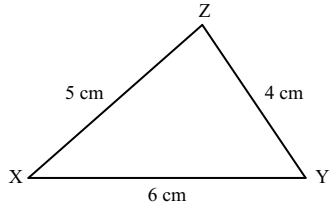


m$\overline{EF}$ = 5cm m$\overline{EG}$ = 3cm

(9) Scalene triangle:

Such triangle where all sides are different in measurement and all angles are also different in measurement is called scalene triangle.

Here $\triangle$ **XYZ** is scalene triangle.



m $\overline{XZ}$ = 5 cm m $\overline{YZ}$ = 4 cm, m $\overline{XY}$ = 6 cm

(10) Quadrilateral:

Any diagram having four sides is called quadrilateral. All angles of quadrilateral of 90°.

(11) Perimeter of Triangle:

The total length of closed diagram is called perimeter.

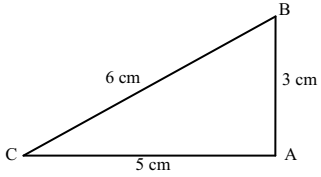
(12) Perimeter of a Triangle:

The sum of three sides of a triangle is called perimeter of a triangle.

For example:

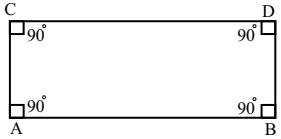
m AB = 3cm
m BC = 6cm
m AC = 5cm

= m AB + m BC + m AC
= 3 + 6 + 5
= 14cm



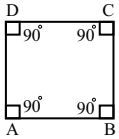
(13) Rectangle:

Such quadrilaterals whose pairs of opposite sides are congruent. Volume of each angle is 90° is called rectangle.



(14) Square:

Square is a quadrilateral whose all sides are congruent and all angles are right angle and is of 90°.



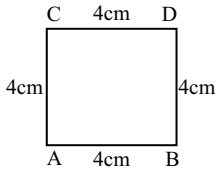
(15) Perimeter Square:

The length of four sides of a square is equal and the sum of all sides of square is called perimeter.

For example:

A = 4, B = 4, C = 4, D = 4

Then:



(16) Diameter:

The line that passes in the center of a circle is called diameter.

(17) Radius:

The half of the diameter is called radius.

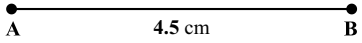
(18) Graph:

The information of any value or thing by line or diagram is called graph.

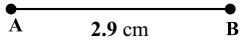
Activity: $\overline{AB}$ = 5 cm

Draw line segments of given length.

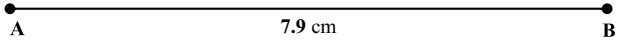
i **4.5 cm**



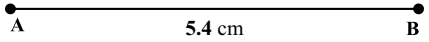
ii **2.9 cm**



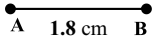
iii **7.9 cm**



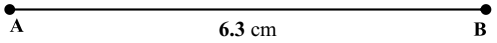
iv **5.4 cm**



v **1.8 cm**



vi **6.3 cm**



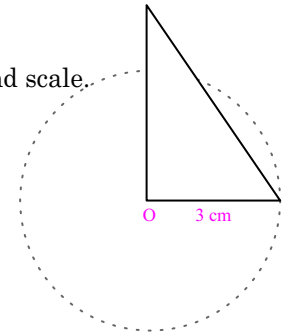
Draw a circle of given radius:

Construct a circle whose radius is 3 centimeter.

Constructor:

Required

pencil, Sharpner, Rubber, Book, compass and scale.

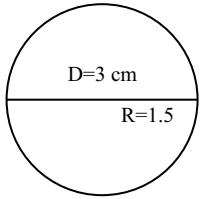


Produce:

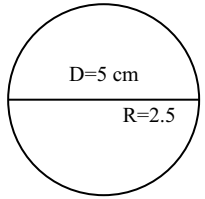
i Draw a point on paper.
ii Open the compus about 3 cm.
iii Draw a circle at the cache of "O"
iv It a required circle.

Activity: Draw circles of given radius.

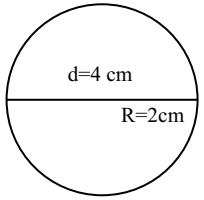
i **1.5 cm**



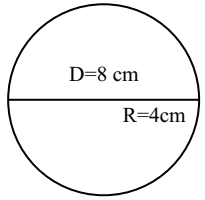
ii **2.5 cm**



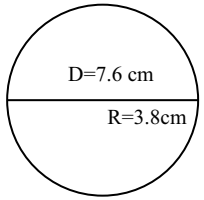
iii **2 cm**



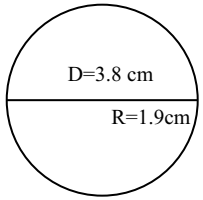
iv **4 cm**



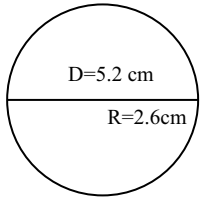
v **3.8 cm**



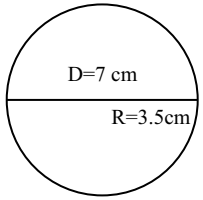
vi **1.9 cm**



vii **2.6 cm**



viii **3.5 cm**

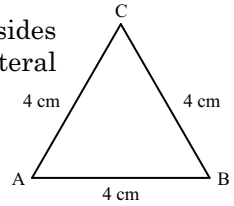


Kinds Triangle:

The kinds and example are under

Equilateral triangle such triangle whose three sides and three angles are congruent is called Equilateral triangle.

Here ABC is equilateral.

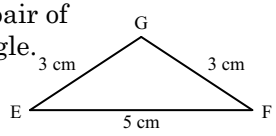


$m\overline{AB} = m\overline{BC} = m\overline{AC} = 4$ cm

Isosceles Triangle

Such triangle whose a pair of sides and a pair of angles is congurent is called Isoscles triangle.

Here $\triangle EFG$ is isosceles triangle.

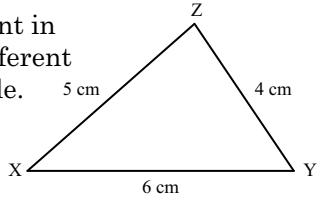


$m\overline{EF} = 5$ cm $\quad m\overline{EG} = m\overline{FG} = 3$ cm

Scalene triangle

Such triangle where all sides are different in measurement and all angles are also different in measurement is called scalene triangle.

Here $\triangle$ **XYZ** is scalene triangle.

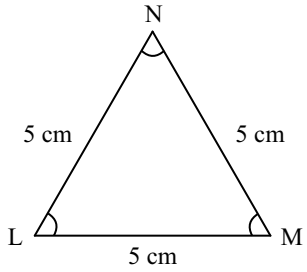


$m\overline{XZ} = 5$ cm $\quad m\overline{YZ} = 4$ cm, $m\overline{XY} = 6$ cm

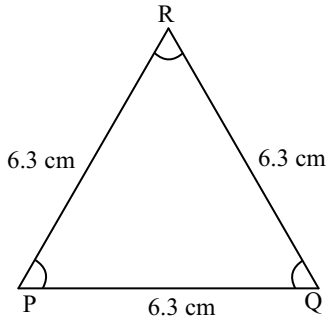
EXERCISE 6.1

Make triangles of the following measurements.

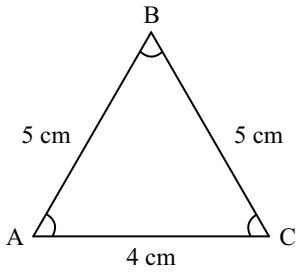
1 **Draw tirangle of** **m LM = m MN = m LN = 5 cm**



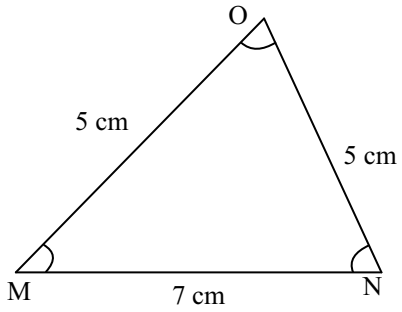
2 **Draw triangle of** **m PQ = m QR = m PR = 6.3 cm**



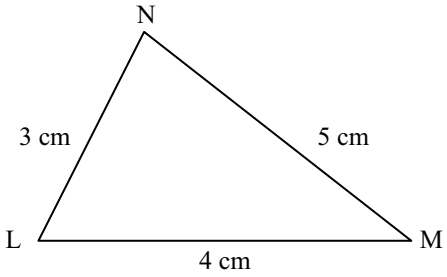
3 **Draw triangle of** **m AB = m BC = 5 cm, m AC = 4 cm**



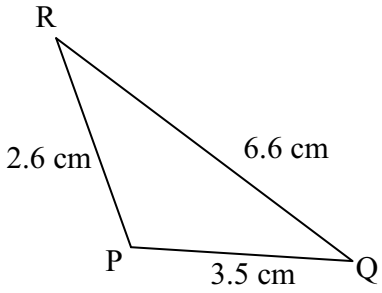
4 **Draw triangle of** **m MN = 7 cm, m MO = m NO = 5 cm**



5 **Draw triangle of** **LMN in which mLM = 4 cm, m MN = 5 cm, m LN = 3 cm**



6 **Draw triangle of** **PQR in which m PQ = 3.5 cm, m PR = 2.6 cm, m QR = 6.6 cm**



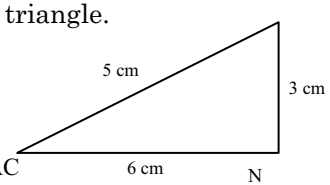
Perimeter of triangle:

The total length of closed diagram is called perimeter, the sum of three sides of a triangle is called perimeter of a triangle.

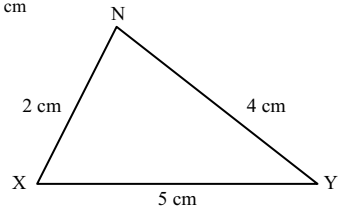
m PQ = 3.5 cm, m PR = 2.6 cm, m QR = 6.6 cm

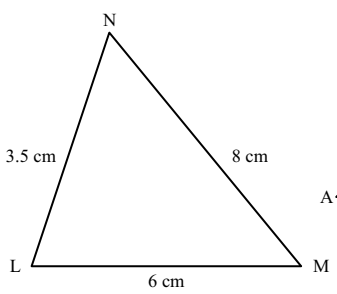
Activity: Find perimeter a triangle.

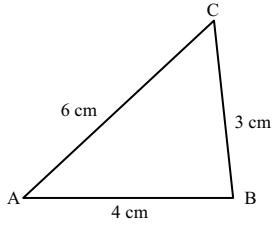
m AB = 3 cm
m BC = 6 cm
m AC = 5 cm
= m AB + m BC + m AC
= 3 + 6 = 5
= 14 cm

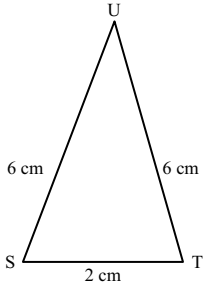


Activity: Find the perimeter of given triangles.



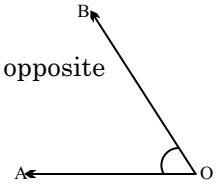






TO DRAW AN ANGLE:

An angle is for consisted of different and opposite lines here line OA and OB make an angle. OR Union of two ray is called angle.

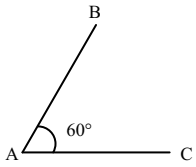


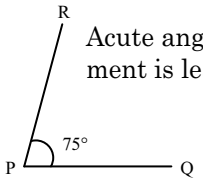
IMPORTANT INFORMATION

1. The golved ends show radius and open ends show degree of an angle.
2. The angle is denoted by ∠AOB OR ∠BOA.
3. The radius name of an angle is placed between two lines.

KINDS OF ANGLE

There are kinds of an angles.



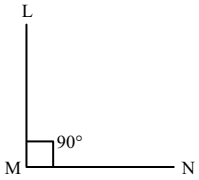


Acute angle: Such angle whose measure ment is less than 90^{o} is called acute angle.

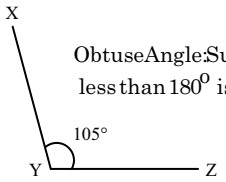
$m\angle BAC = 60°$

$m\angle PQR = 75°$

Right angle: such angle whose Measurement is y 90^{o} is called right angle.



$m\angle LMN = 90°$



Obtuse Angle: Such angle whose measure Ment is Greater than 90^{o} and less than 180^{o} is called Obtuse angle.

$m\angle XYZ = 105°$

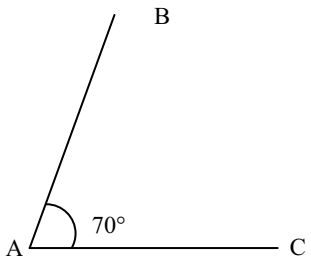
Measurement and construction of angles

The unit of angle is degree, we use protector to C law an angle, there are 180 degrees on protector.

IMPORTANT INFORMATION

- "m" is used for measurement and "O" is used for degree.

Activity: Draw an angle of 70^{o} with the help of protector.



Construction:

i. Draw a radius B in angle∠ ABC

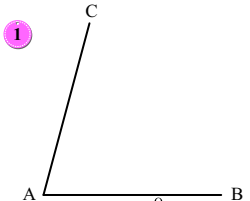
ii. Place protector m one end of angle.

iii. Draw a point on given measurement of angle.

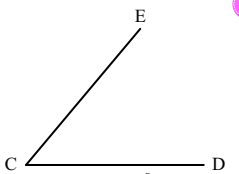
Here degree is 70^{o} $m\angle ABC = 70°$

EXERCISE 6.2

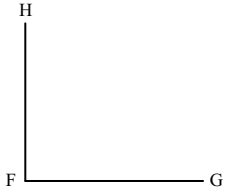
i. Find the measurement given angle.

1. 

Ans: 80^{O}

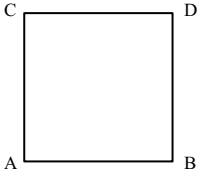
2. 

Ans: 50^{O}

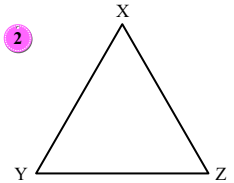
3. 

Ans: 90^{O}

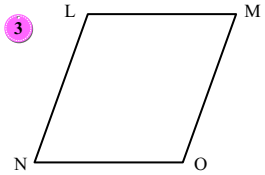
ii. Find the measurement of angles in given diagram.

1. 

Ans: Right angles

2. 

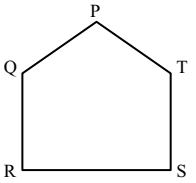
Ans: Acute angles

3. 

Ans: Acute angles

4. 

Ans: Right angles

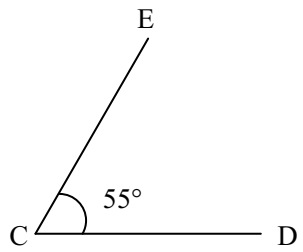
5. 

Ans: reflex and Right angles

iii Draw angles with the help of protector.

1 m CD = 3 cm, m∠CDE = 55°

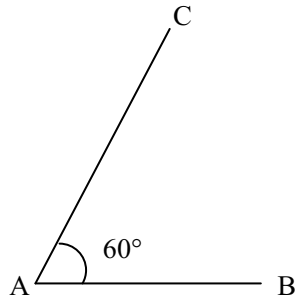
Sol: Let mCD = 3cm and m∠CDE = 55°
then,



Construction:
(1) Draw a line CD of 3cm.
(2) Draw a radius E in angle <CDE.
(3) Place protector m one and of angle.
(4) Draw a point on given measurement of angle.
Here degree is 55° , mCDE = 55° .

2 m AB = 4 cm, m∠ABC = 60°

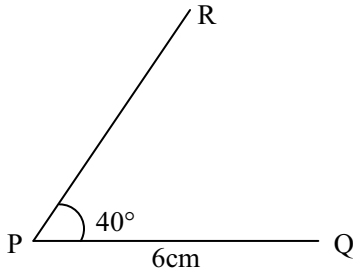
Sol: Let mAB = 4cm and m ∠ ABC = 60°
then,



Construction:
(1) Draw a line **AB** of **4**cm.
(2) Draw a radius **C** in angle <**ABC**.
(3) Place protector m one and of angle.
(4) Draw a point on given measurement of angle.
Here degree is **60**° , mABC = 60° .

3 m PQ = 6 cm, m∠PQR = 40°

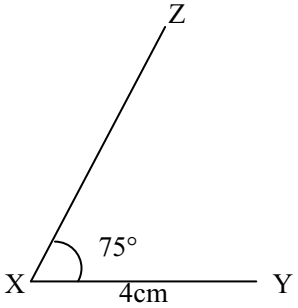
Sol: Let mPQ = 6cm and m∠PQR = 40°
then,



Construction:
(1) Draw a line **PQ** of **6**cm.
(2) Draw a radius **R** in angle <**PQR**.
(3) Place protector m one and of angle.
(4) Draw a point on given measurement of angle.
Here degree is **40**° , mPQR = 60° .

4 m XY = 4 cm, m∠XYZ = 75°

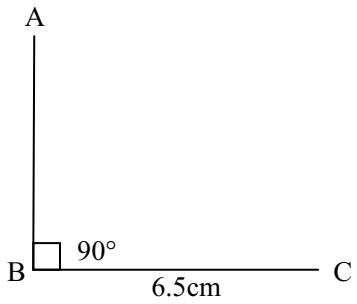
Sol: Let mXY = 4cm and m∠ XYZ = 75°
then,



Construction:
(1) Draw a line **XY** of **4**cm.
(2) Draw a radius **Z** in angle <**XYZ**.
(3) Place protector m one and of angle.
(4) Draw a point on given measurement of angle.
Here degree is **75**° , mXYZ = 75° .

5 m BC = 6.5 cm, m∠ABC = 90°

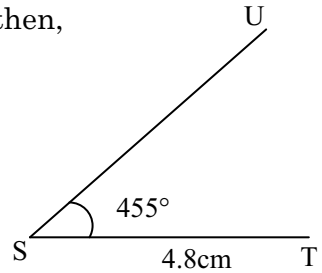
Sol: Let mBC = 6.5cm and m∠ ABC =90°
then,



Construction:
(1) Draw a line **BC** of **6.5**cm.
(2) Draw a radius **A** in angle <**ABC**.
(3) Place protector m one and of angle.
(4) Draw a point on given measurement of angle.
Here degree is **90°** , mABC = 90° .

6 m ST = 4.8 cm, m∠STU = 45°

Sol: Let mST = 4.8cm and m ∠ STU = 45°
then,



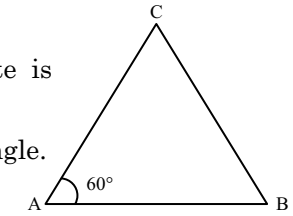
Construction:
(1) Draw a line **ST** of **4.8**cm.
(2) Draw a radius **U** in angle <**STU**.
(3) Place protector m one and of angle.
(4) Draw a point on given measurement of angle.
Here degree is **45°** , mSTU = 45° .

Kinds of triangle with respect of angles

i Acute angled triangle:

Such triangle where all angles are acute is called acute angle triangle.

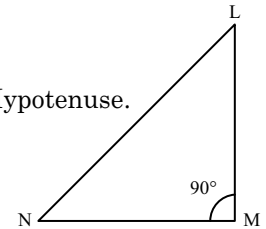
Here **Δ ABC** ABC is acute angled triangle.



ii Important information

The side between the mLN and mL is called Hypotenuse. triangles. Here **ΔLMN** is right angled

triangle = 90 $\overset{o}{=}$ m LM



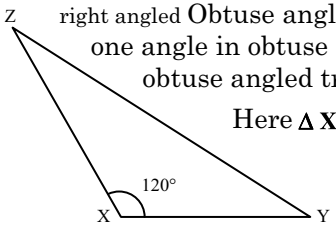
IMPORTANT INFORMATION

Side ∠ N is opposite of ∠ M is called Hypotenuse.

iii Right angled triangle:

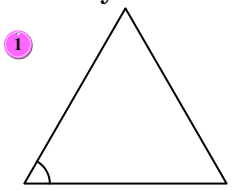
Such triangle whose only one angle is right or of 90 $\overset{o}{}$ is called right angled Obtuse angled triangle: Such triangle whose only one angle in obtuse and other two are acute angle is called obtuse angled triangle.

Here **Δ XYZ** is obtuse angled triangle.



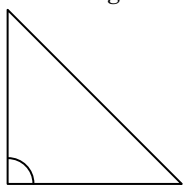
Activity: Give the names in triangle with respect to angles.

1



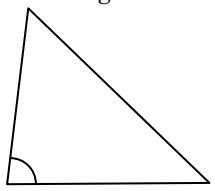
Ans: Equilaterat Triangle

2



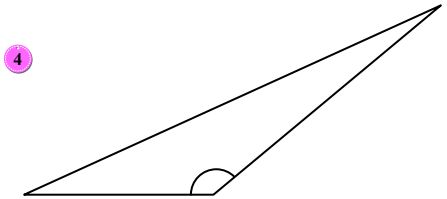
Ans: Right angle

3

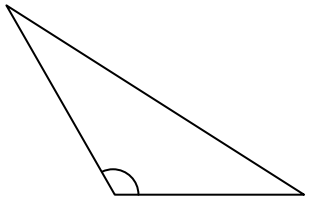


Ans: Acute Angled Triangle

4

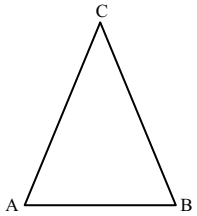


5

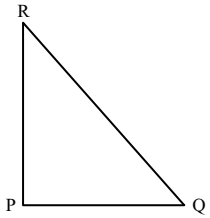


Activity: Measure the triangles.

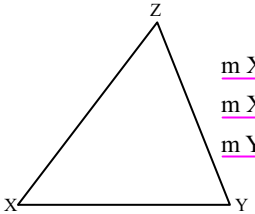
Ans: obtuse Angled Triangle



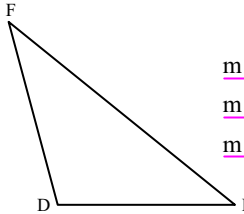
m AB = m $\overline{AB}$
m BC = m $\overline{BC}$
m AC = m $\overline{AC}$



m PQ = m $\overline{PQ}$
m PR = m $\overline{PR}$
m QR = m $\overline{QR}$



m XY = m $\overline{XY}$
m XZ = m $\overline{XZ}$
m YZ = m $\overline{YZ}$

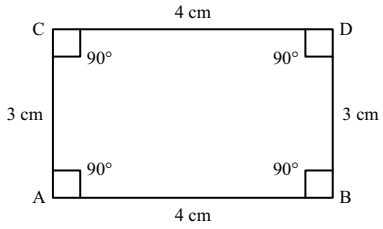


m DE = m $\overline{DE}$
m DF = m $\overline{DF}$
m EF = m $\overline{EF}$

Construction of square and rectangle

Rectangle:

Such quadrilateral whose pairs of opposite sides are congruen and all angles are right angles is called rectangle.



Example:

Draw ABCD where length = 4cm and with 3cm.

mAB = mCD = 4 cm

mAC = mBD = 3 cm

$\angle A = \angle B = \angle C = \angle D = 90°$

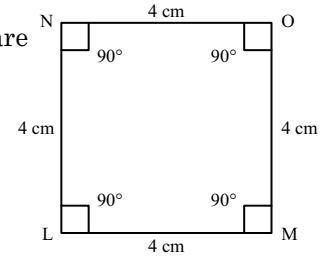
Square:

Square is a quadrilateral whose all side are congruet and all angles are right angle is Called square.

Example: Draw square whose all sides = 4cm.

mMO = mLN = mNO = mLM = 4 cm

$\angle L = \angle M = \angle N = \angle O = 90°$



Construction of square

Example: Draw a square whose rides are of 5cm length.

i. Draw a line m AB= 5cm

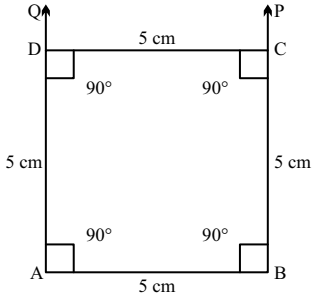
ii. Draw an angle of 90° m A Point.

iii. Draw an angle of 90° on B point.

iv. Draw an arc of 5 cm on C point.

v. Joint point A and C with D.

Here □**ABCD** is square.



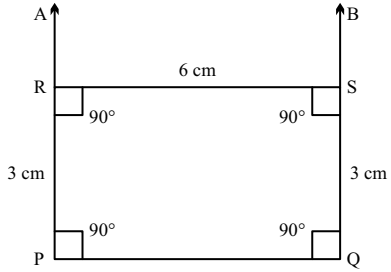
Construction of Rectangle

Example: Draw a rectangle whose length is 6cm and width is 3cm

i. Draw line segment of 6cm on pand Q.

ii. Draw an angle of 90 on P and also on Q.

iii. Draw a line segment of 3cm MQS and PR



iv. Joint point R with s

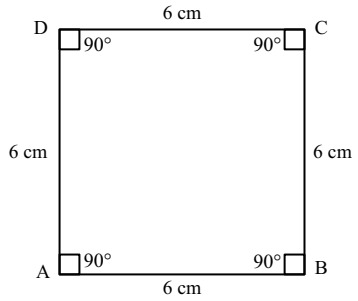
v. He □ **PQRS** is rectangle.

EXERCISE 6.3

1 Make the square of following measurements.

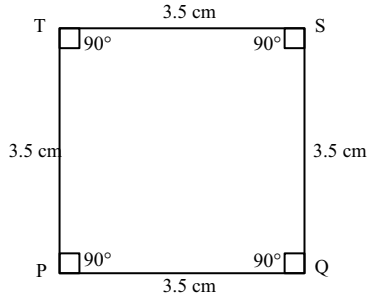
1 m AB = 6 cm

Sol: * Draw a line mAB = 6cm.
* Draw an angle of 90 mA point.
* Draw an angle of 90 on B point.
* Draw an are of 6cm on C point.
* Joint point A and C with D.
* Hence:□ ABCD is required square.



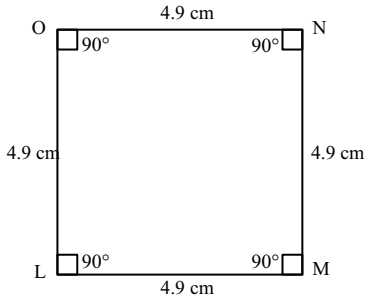
2 m PQ = 3.5 cm

Sol: * Draw a line mPQ = 3.5cm.
* Draw an angle of 90 mP point.
* Draw an angle of 90 on Q point.
* Draw an are of 3.5cm on R point.
* Joint P and R with S.
* Hence:□ PQRS is required square.



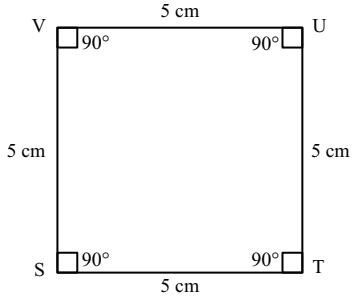
3 m LM = 4.9 cm

Sol: * Draw a line mLM = 4.9cm.
* Draw an angle of 90 mL point.
* Draw an angle of 90 on M point.
* Draw an are of 4.9cm onN point.
* Joint point L and N with OD.
* Hence:□ LMNO is required square.



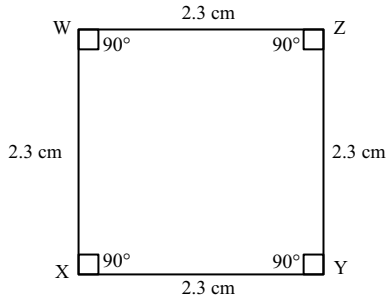
4 m ST = 5 cm

Sol: * Draw a line mST = 5cm.
* Draw an angle of 90 mS point.
* Draw an angle of 90 on T point.
* Draw an are of 5cm on U point.
* Joint S and U with V.
* Hence:□ STUV is required square.



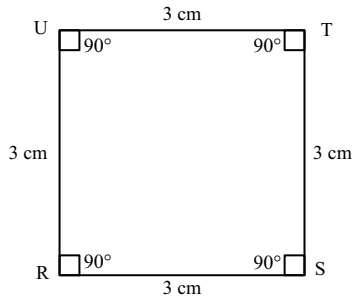
5 **m XY = 2.3 cm**

Sol: * Draw a line mXY = 2.3cm.
* Draw an angle of 90 mX point.
* Draw an angle of 90 onY point.
* Draw an are of 2.3cm on Z point.
* Joint point X and Z with W.
* Hence:□ XYZW is required square.



6 **m RS = 3 cm**

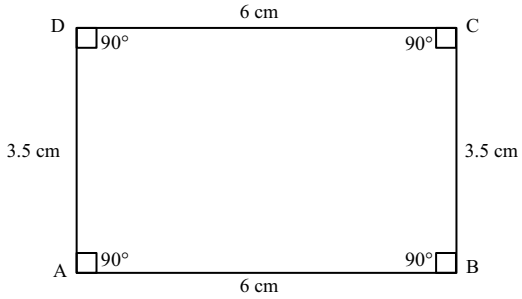
Sol: * Draw a line mRS = 3cm.
* Draw an angle of 90 mR point.
* Draw an angle of 90 on S point.
* Draw an are of 3cm on T point.
* Joint R and T with US.
* Hence:□ RSTU is required square.



ii Construct rectangles of given measurement.

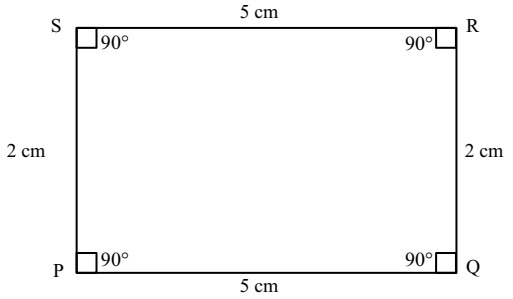
1 **l = 6m and W = 3.5 cm**

Sol: * Draw a line segment of 6cm on A and B.
* Draw an angle of 90 on A and also on B.
* Draw a line segment of 3.5cm m $\overline{AC}$ and m $\overline{BC}$
* Joint point C with D.
* Hence: ▭ ABCD is required square.



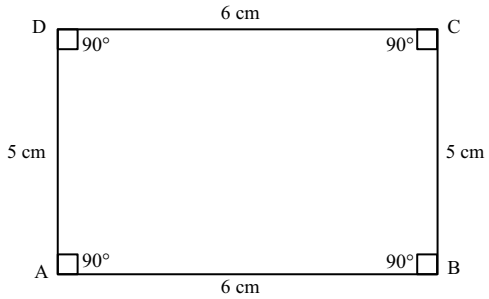
2 **l = 5a w = 2m**

Sol: * Draw a line segment of 2cm on P and Q.
* Draw an angle of 90 on P and also on Q.
* Draw a line segment of 2cm m $\overline{QS}$ and m $\overline{PR}$
* Joint point R with S.
* Hence: ▭ PQRS is required square.



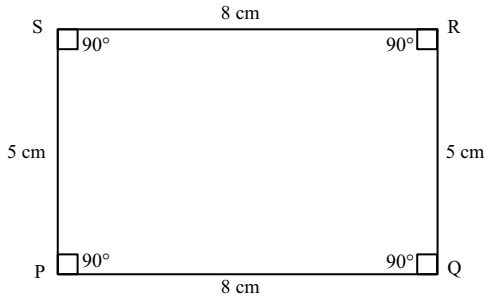
3 **l - 6m, w= 4.5 cm**

Sol: * Draw a line segment of 6cm on P and Q.
* Draw an angle of 90 on P and also on Q.
* Draw a line segment of 4.5cm m $\overline{QS}$ and m $\overline{PQ}$
* Joint point R with S.
* Hence: ▭ PQRS is required square.



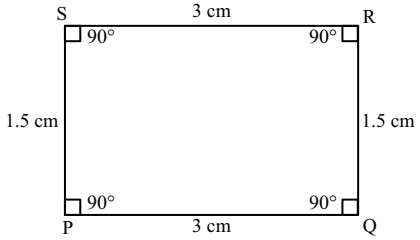
4 **l = 8 cm and w = 5cm**

Sol: * Draw a line segment of 8cm on P and Q.
* Draw an angle of 90 on P and also on Q.
* Draw a line segment of 5cm m $\overline{QS}$ and m $\overline{PR}$
* Joint point R with S.
* Hence: ▭ PQRS is required square.



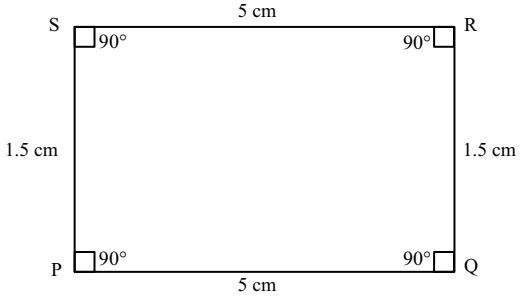
5 **3cm w = 1.5m**

Sol: * Draw a line segment of 3cm on P and Q.
* Draw an angle of 90 on P and also on Q.
* Draw a line segment of 1.5cm m $\overline{QS}$ and m $\overline{PQ}$
* Joint point R with S.
* Hence: ▭ PQRS is required square.



6 **l = 5 cm w = 1.5 cm**

Sol: * Draw a line segment of 5cm on P and Q.
* Draw an angle of 90 on P and also on Q.
* Draw a line segment of 1.5cm m $\overline{QS}$ and m $\overline{PR}$
* Joint point R with S.
* Hence: ▭ PQRS is required square.



To find the perimeter of square and rectangle

Square:

The length of all rides of a square is euqal so that the sum of all rides of square is called perimeter.

Perimeter = 4x length

Example: Find perimeter of □ **ABCD** if length of rider is 3cm.

Solution:

Perimeter = 4×3 Peri meter

= 12 cm

= $3 + 3 + 3 + 3 = 12$ cm

Perimeter of Rectangle

The long side of rectangle is called length and wide ride of rectangle is called Peri meter of rectangle

= 2 (width + lenght)

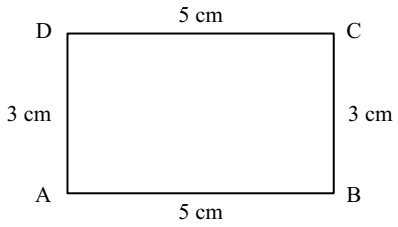
Example: Find peri meter of rectangle if length = 5cm and width = 3cm.

Solution Perimeter = (length + width) × 2

Peri meter = $(3 + 5) \times 2$

Peri meter = $8 \times 2 = 16$ cm

= $5 + 3 + 5 + 3 = 16$ cm

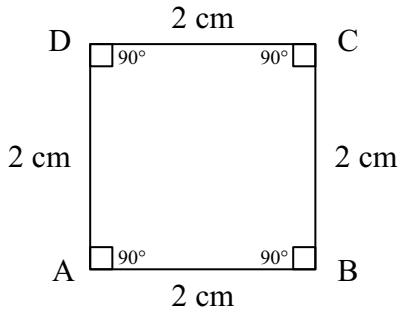


EXERCISE 6.4

I Construct square and find peri meter.

1 **2 cm**

Sol: * Draw a line m AB = 2cm.
* Draw an angle of 90 m A point.
* Draw an angle of 90 on B point.
* Draw an are of 2cm on C point.
* Joint point A and C with D.
* Hence: □ ABCD is required square.



Perimeter of square.

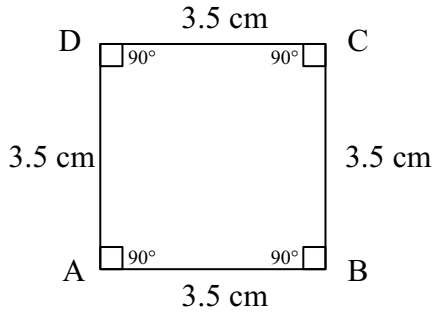
Perimeter = 4×2

Peri meter = 8 cm

= $2 + 2 + 2 + 2 = 8$ cm

2 **3.5 cm**

Sol: * Draw a line m AB = 3.5cm.
* Draw an angle of 90 m A point.
* Draw an angle of 90 on B point.
* Draw an are of 3.5cm on C point.
* Joint point A and C with D.
* Hence: □ ABCD is required square.



Perimeter of square.

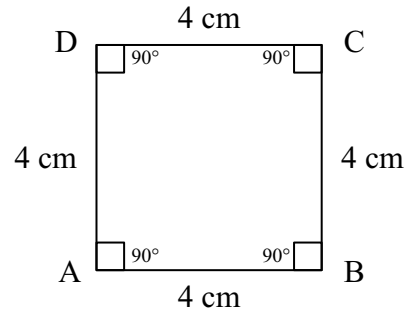
Perimeter = 4×3.5

Peri meter = 14 cm

= 3.5 +3.5 + 3.5 + 3.5 = 14 cm

3 **4 cm**

Sol: * Draw a line m AB = 4cm.
* Draw an angle of 90 m A point.
* Draw an angle of 90 on B point.
* Draw an are of 4cm on C point.
* Joint point A and C with D.
* Hence: □ ABCD is required square.



Perimeter of square.

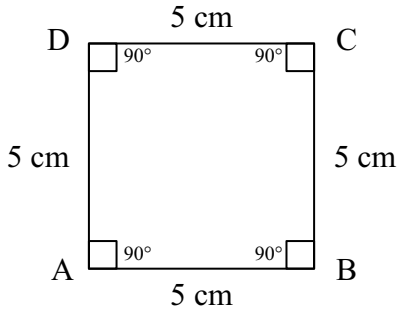
Perimeter = 4×4

Peri meter = 16 cm

= 4 + 4 + 4 + 4 = 16 cm

4 **5 cm**

Sol: * Draw a line m AB = 5cm.
* Draw an angle of 90 m A point.
* Draw an angle of 90 on B point.
* Draw an are of 5cm on C point.
* Joint point A and C with D.
* Hence: □ ABCD is required square.



Perimeter of square.

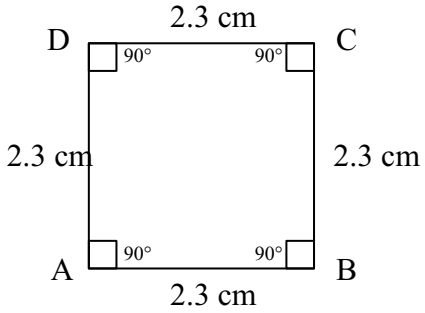
Perimeter = 4×5

Peri meter = 20 cm

= 5 + 5 + 5 + 5 = 20 cm

5 **2.3 cm**

Sol: * Draw a line m AB = 2.3cm.
* Draw an angle of 90 m A point.
* Draw an angle of 90 on B point.
* Draw an are of 2.3cm on C point.
* Joint point A and C with D.
* Hence: □ ABCD is required square.



Perimeter of square.

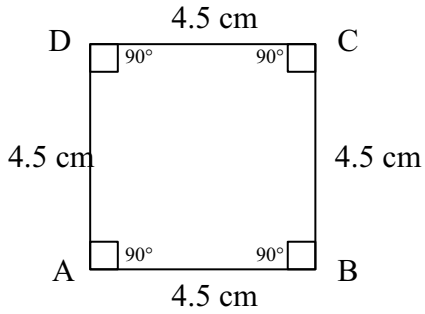
Perimeter = 4×2.3

Peri meter = 9.2 cm

= $2.3 + 2.3 + 2.3 + 2.3 = 9.2$ cm

6 **4.5 cm**

Sol: * Draw a line m AB = 4.5cm.
* Draw an angle of 90 m A point.
* Draw an angle of 90 on B point.
* Draw an are of4.52cm on C point.
* Joint point A and C with D.
* Hence: ▭ ABCD is required square.



Perimeter of square.

Perimeter = 4×4.5

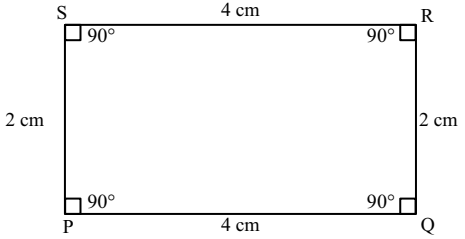
Peri meter = 18 cm

= $4.5 + 4.5 + 4.5 + 4.5 = 18$ cm

ii **Construct rectangle and find the peri meter.**

1 **l = 4cm, w= 2cm**

Sol: * Draw a line segment of 4cm on P and Q.
* Draw an angle of 90 on P and also on Q.
* Draw a line segment of 2cm m $\overline{QS}$ and m $\overline{PQ}$
* Joint point R with S.
* Hence: ▭ PQRS is required square.



Perimeter of rectangle = 2 x (length + width)

Perimeter of rectangle = 2 (L + W)

Perimeter of rectangle = 2 (4 + 2)

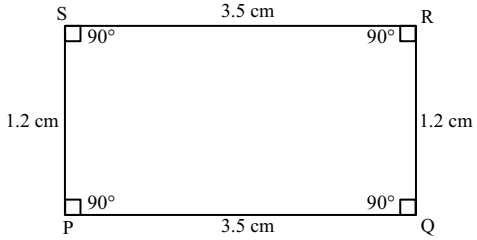
Perimeter of rectangle = 2 x 6

Perimeter of rectangle = 12 cm

Perimeter of rectangle = 4 + 2 + 4 + 2 = 12 cm

2 **l = 35 cm w = 1.2 cm**

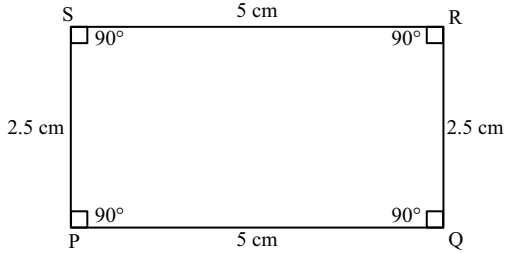
Sol: * Draw a line segment of 3.5cm on P and Q.
* Draw an angle of 90 on P and also on Q.
* Draw a line segment of 1.2cm m $\overline{QS}$ and m $\overline{PQ}$
* Joint point R with S.
* Hence: ▭ PQRS is required square.



Perimeter of rectangle = 2 x (length + width)
Perimeter of rectangle = 2 (L + W)
Perimeter of rectangle = 2 (3.5 + 1.2)
Perimeter of rectangle = 2 x 4.7
Perimeter of rectangle = 9.4 cm
Perimeter of rectangle = 3.5 + 1.2 + 3.5 + 1.2 = 9.4 cm

3 l = 5cm,w = 2.5

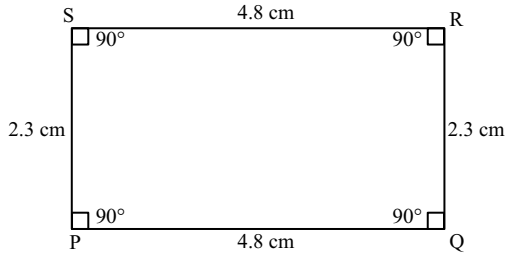
Sol: * Draw a line segment of 5cm on P and Q.
* Draw an angle of 90 on P and also on Q.
* Draw a line segment of 2.5cm m $\overline{QS}$ and m $\overline{PQ}$
* Joint point R with S.
* Hence: ▭ PQRS is required square.



Perimeter of rectangle = 2 x (length + width)
Perimeter of rectangle = 2 (L + W)
Perimeter of rectangle = 2 (5 + 2.5)
Perimeter of rectangle = 2 x 7.5
Perimeter of rectangle = 15 cm
Perimeter of rectangle = 5 + 2.5 + 5 + 2.5 = 15 cm

4 l = 4.8 cm, w = 2.3 cm

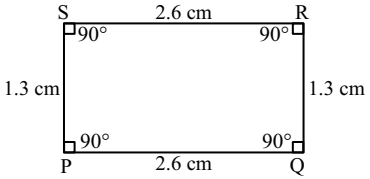
Sol: * Draw a line segment of 4.8cm on P and Q.
* Draw an angle of 90 on P and also on Q.
* Draw a line segment of 2.3cm m $\overline{QS}$ and m $\overline{PQ}$
* Joint point R with S.
* Hence: ▭ PQRS is required square.



Perimeter of rectangle = 2 x (length + width)
Perimeter of rectangle = 2 (L + W)
Perimeter of rectangle = 2 (4.8 + 2.3)
Perimeter of rectangle = 2 x 7.1
Perimeter of rectangle = 14.2 cm
Perimeter of rectangle = 4.8 + 2.3 + 4.8 + 2.3 = 14.2 cm

5 l = 2.6 cm,w = 1.3 cm

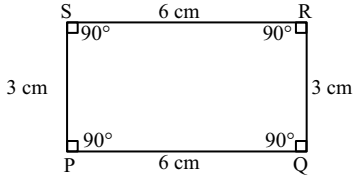
Sol: * Draw a line segment of 2.6cm on P and Q.
* Draw an angle of 90 on P and also on Q.
* Draw a line segment of 1.3cm m $\overline{QS}$ and m $\overline{PQ}$
* Joint point R with S.
* Hence: ▭ PQRS is required square.



Perimeter of rectangle = 2 x (length + width)
Perimeter of rectangle = 2 x (L + W)
Perimeter of rectangle = 2 x (2.6 + 1.3)
Perimeter of rectangle = 2 x (3.9)
Perimeter of rectangle = 7.8
Perimeter of rectangle = 2.6 + 1.3 + 2.6 + 1.3 = 7.8 cm

6 **l = 6 cm, w = 3cm.**

Sol: * Draw a line segment of 6cm on P and Q.
* Draw an angle of 90 on P and also on Q.
* Draw a line segment of 3cm m $\overline{QS}$ and m $\overline{PQ}$
* Joint point R with S.
* Hence: ▭ PQRS is required square.

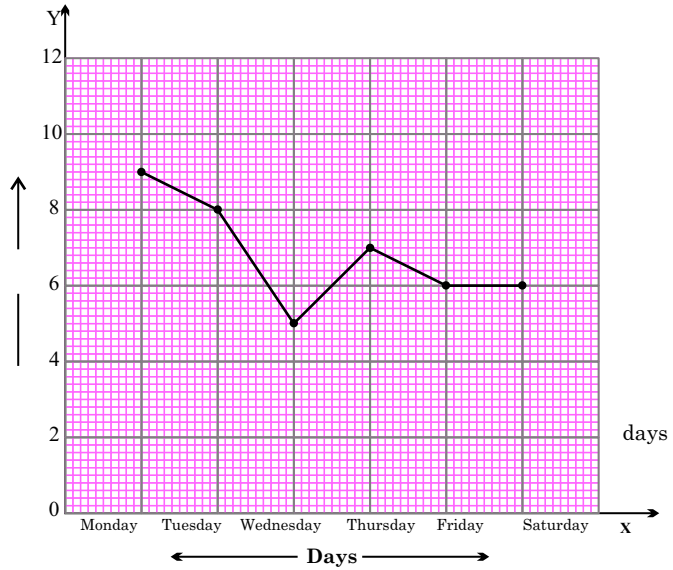


Perimeter of rectangle = 2 x (length + width)
Perimeter of rectangle = 2 (L + W)
Perimeter of rectangle = 2 (6 + 3)
Perimeter of rectangle = 2 x 9
Perimeter of rectangle = 18 cm
Perimeter of rectangle = 6 + 3 + 6 + 3 = 18 cm

Information Handling:

When numbers are shown on graph paper to find out the information of given materials is called information handling.

For example. The regularity of a student is obtained from its graph, If he goes regularly or not, then live goes up or the regularity of a student is shown in given graph, in which line ox is on long ontal axis and o y is verticle axis.

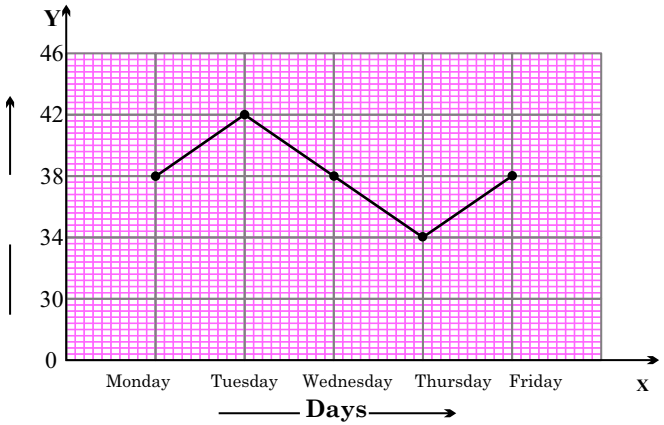


The teachercan find the regularity of studentwatch the slaph.

Days	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Presence	9	8	5	7	6	6

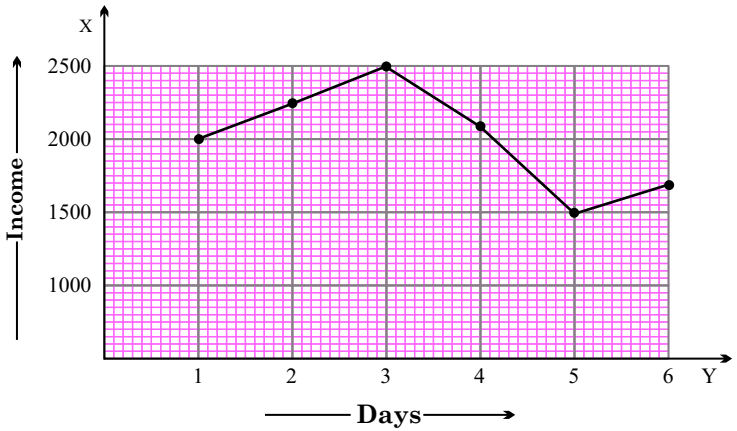
Activity:

The rate of sugar in Lahore city is shown in line graph, when live ox shows the days which ox shows the rate of sugar. Now complete date.



Days	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Presence						

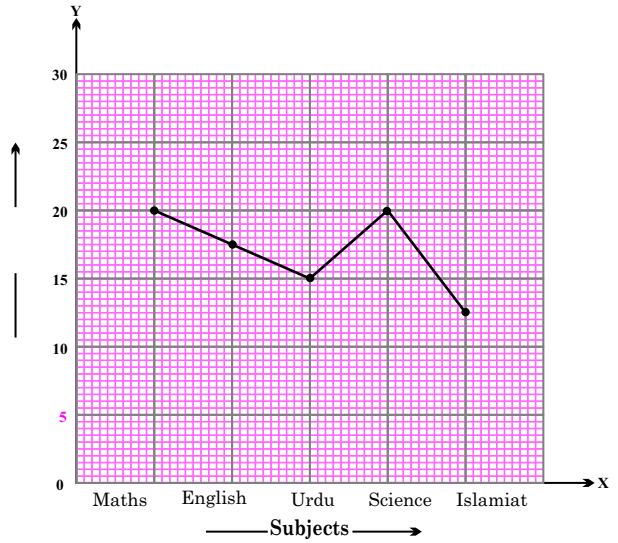
The weekly income of a shopkeeper is shown in graph. Read it and complete the data.



Days	First day	Second day	Third day	Fourth day	Fifth day	Six day
Income						

Activity:

Muhammad Aslam gave test of five subject his marks are shown in graph, Read the graph and complete the data. Line ox shows the subject and oy shows the marks.



Subjects	Maths	English	Urdu	Science	Islamiat
Obtained Marks					

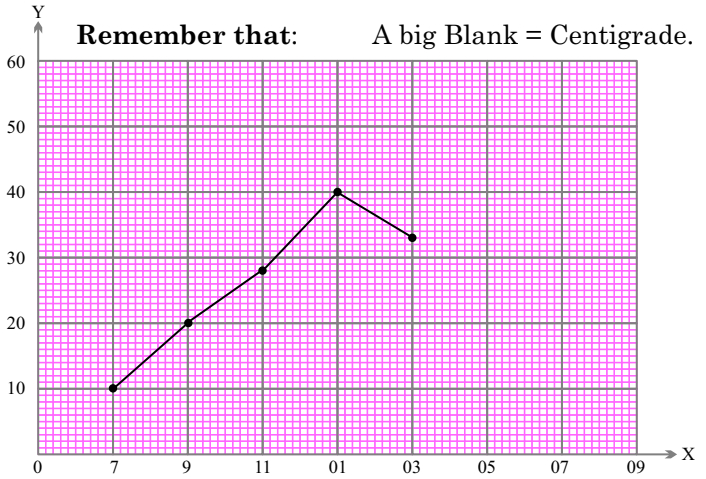
Line graph:

It shows increasing or decreasing of quantity. In this graph any one thing is shown on different times and numbers.

Example:

The temperature of a city from of morning to 5 of evening is shown, Give the answers with the help of graph.

Remember that: A big Blank = Centigrade.



i On what time temperature was low? 7 a.m

ii On what time temperature was high? 1 9.m

iii How much temperature was on 3:00? 38° C

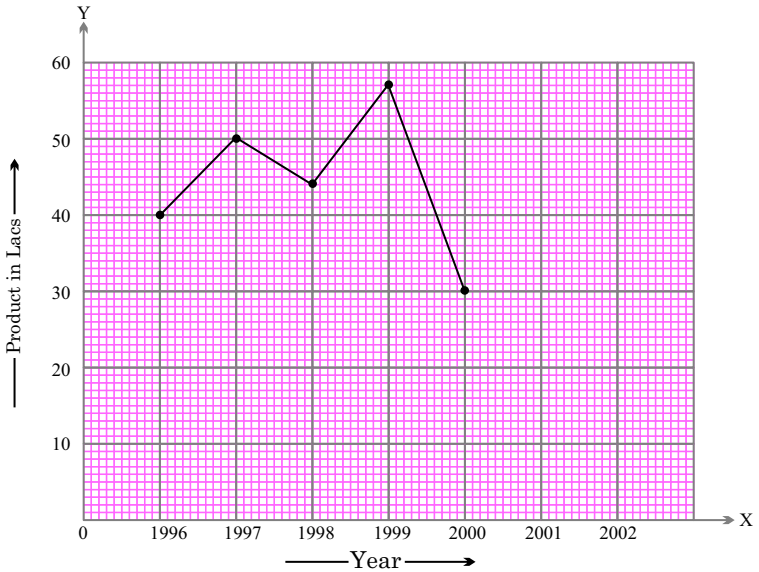
iv On what time was higher 11:00 clock or 9:00 clock? 9Clock.

EXERCISE 7.1

1 The product of wheat is shown in graph, read the graph carefully and give the answers of questions (scale = Big Blank = 10 Lac)

i In which year product was less? 2000

ii In which year product was much? 1999, (75lacs)



iii Different in much product and less product. 17 lacs

iv What was product in 1996. 40 lacs

v What was product in 1997 and 1999. 90 lacs

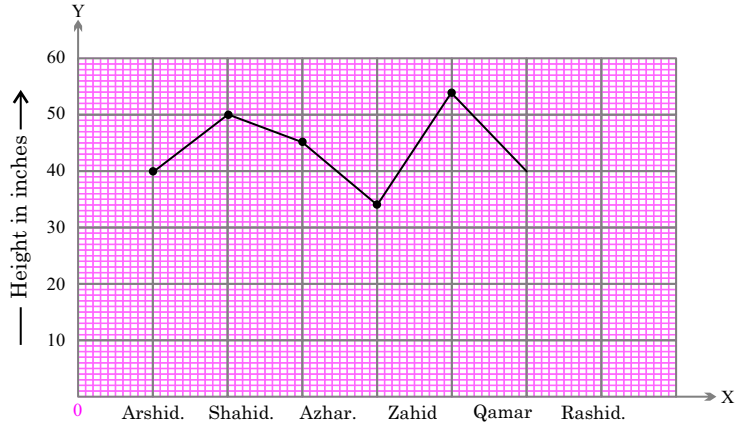
2 The height of Boys in shown in inches, Read the graph carefully and give the answers of these Questions.

(Scale = A big Blank = 10 inch)

i Who is heighest boy and whose height is Qamar, (54 inches)

ii Whose in little Boy and its height is Zahid

iii How Rashid is long? 40 inches

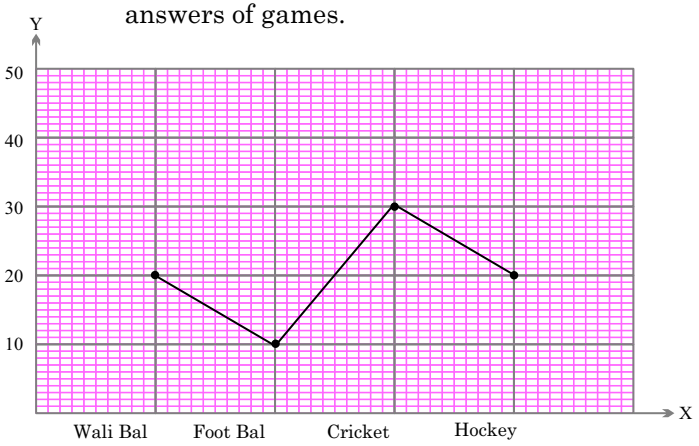


iv How much Azhar is longer than Rashid? 6 inches

v How much Zahid is longer than Shahid? 24 inches

vi How much Qamar is longer than Azhar? 10 inches

3 The students of fourth class participate in games. Give the answers of games.



i How many students did play hockey. 20 students

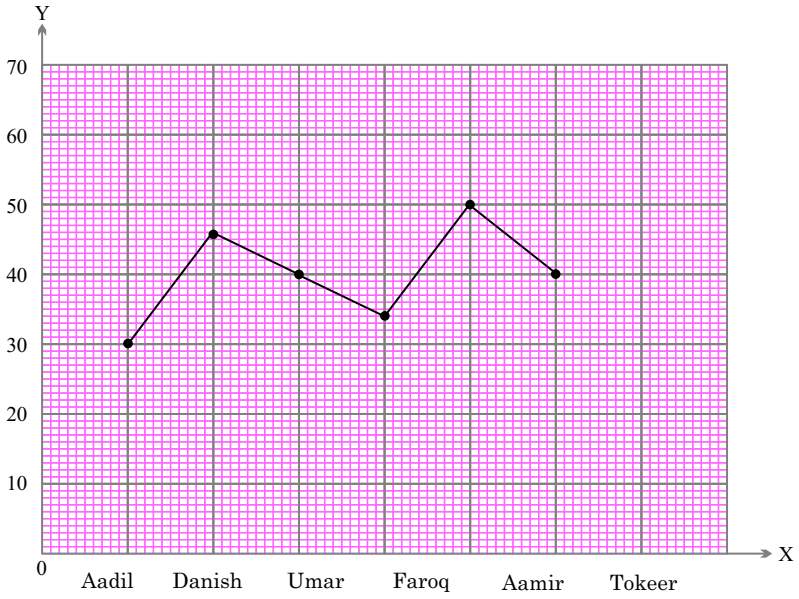
ii How many students did play cricket. 30 students

iii What game was played in much? Cricket

iv Tell the number of volleyball and football players. 30 players

v How many football players were there? 10 players

4 There is a line graph of weight of 6 boys. By watching this, give the answers of following questions:



i Who is the heaviest boy than all? Aamir

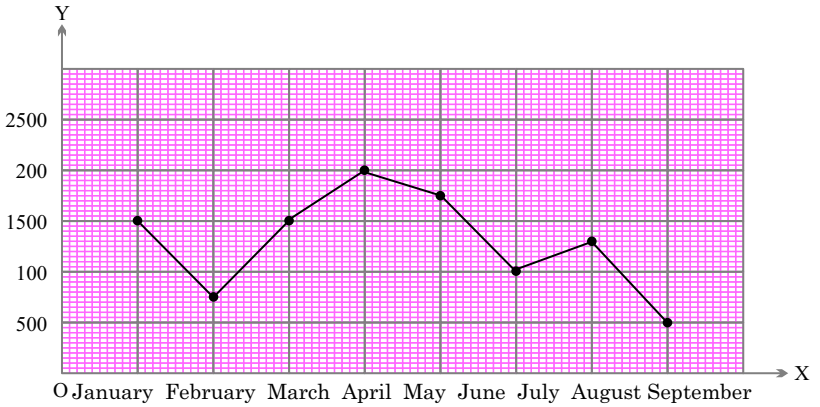
ii How much is the weight of Danish 46 kg

iii Who is the highest boy than all? Aamir

iv What is the difference between the weight of Farooq and weight Aamir. 16 kg

v Who is the heavier between Umar and Aamir. Aamir

2 The line graph of January to August of Aisha's saving is given below. Give the answers of the given questions.



i In which month the saving of Aisha was low? April

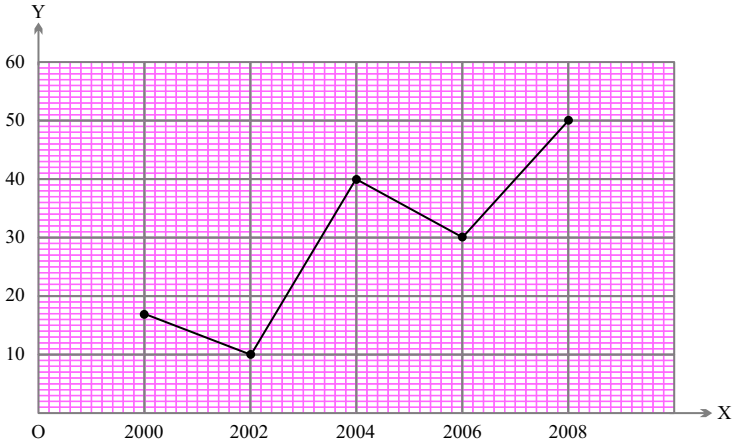
ii How much Aisha saved her saving in February? 700

iii What is the saving of July and August? 1800

iv In which months, the saving of Aisha was the most? April

v What is the saving of the month of March? 1500

5



i How many schools were in 2000? — 16 Schools

ii How many schools were in 2004? — 40 Schools

iii In which year schools were more? — 2008

iv In which year schools were less? — 2002

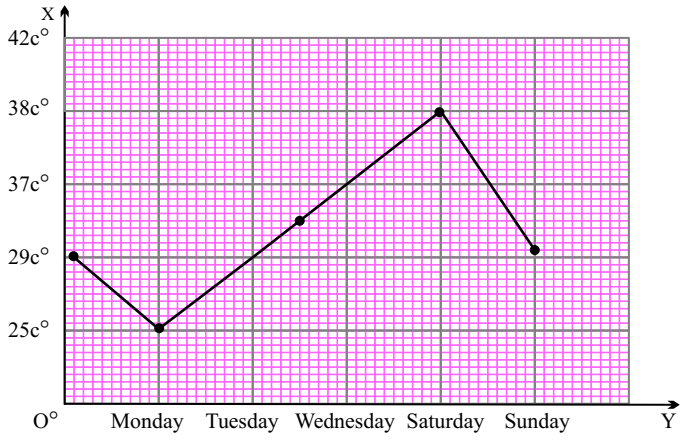
v How many schools were in 2006? — 30 Schools

6 Show the yearly product of shoes in a factory.

Year	2010	2011	2012	2013
Number of shoes	400	595	315	800

7 Show the temperature of different days in Lahore.

Days	Wednesday	Tuesday	Monday	Sunday	Saturday
Temperature	37° C	25° C	29° C	38° C	42° C



ANSWERS:

EXERCISE 1.1

i
1. Three million, one hundred fifty two thousand five hundred sixty seven.
2. Three million, five hundred fifty thousand, Twelve.
3. Four million, one hundred forty four thousand, seven hundred fifty two.
4. Five million six hundred seventy seven thousand, five hundred twenty six.
5. Eight hundred two thousand, two hundred ninety five.
6. Nine hundred fifty two thousand four hundred fifty two.
7. Six million, seven hundred eighty five thousand, eight hundred twelve.
8. Eight million, seven hundred twenty five thousand, one hundred thirty eight.
9. Seven hundred twenty nine thousand, six hundred sixteen.
10. Three million, four hundred forty thousand, twenty one.
11. Eight million, four hundred thirty one thousand nine hundred one.
12. Six hundred seventy Nine Thousand five hundred fifty two.

ii
1. 11,250,901
2. 4 439 400
3. 386 899
4. 4 463 204
5. 12 901
6. 62 478
7. 2,000,201
8. 48 921 035
9. 4,215,402
10. 1,461,000

iii
1. 5000
2. 400000
3. 3000000
4. 70000
5. 500
6. 5
7. 20
8. 400000
9. 50000
10. 3000
11. 50000
12. 9000

EXERCISE 1.2

i
1. ۹۵۳۵۹۳۱
2. ۷۲۷۵۳۹۰
3. ۱۷۵۸۹۵۲
4. ۷۳۵۹۳۳
5. ۱۵۶۰۷۹۲
6. ۸۹۵۷۳۰
7. ۳۳۶۱۰۳۲
8. ۳۳۵۹۹۲
9. ۳۳۹۰۲۲۱
10. ۳۳۵۵۶۰۷
11. ۳۶۰۳۷۲۱
12. ۳۰۳۷۵۰۷

ii
1. 124798
2. 102243
3. 5678910
4. 3020607
5. 112234
6. 459578
7. 778899
8. 175060

iii
1. ۹۵۹۲۱۰
2. ۳۹۵۲۱
3. ۳۸۶۷۵۵
4. ۹۷۸۷۵۹
5. ۵۱۳۹۲۹
6. ۳۵۷۸۸۱۰
7. ۱۵۳۹۷۲
8. ۹۳۵۹۲۱
9. ۱۹۳۹۲۵
10. ۳۵۸۱۷۵
11. ۱۶۵۹۷۹
12. ۹۵۹۵۲۱

iv
1. 567809
2. 7890
3. 12679
4. 19450
5. 44347
6. 89765
7. 34567
8. 45678

v
1. XL
2. LXIX
3. XXVI
4. LXXIX
5. L
6. XXXVII
7. XXX
8. LXXIV
9. LXV
10. LXXI
11. XCIX
12. C

EXERCISE 2.1

i

1. 24 = 1, 2, 3, 4, 6, 8, 12, 24
2. 36 = 1, 2, 3, 4, 6, 9, 12, 18, 36
3. 48 = 1, 2, 3, 4, 6, 8, 12, 16, 24, 48
4. 81 = 1, 3, 9, 27, 81
5. 60 = 1, 2, 3, 4, 5, 6, 10, 12, 15, 20, 30, 60
6. 75 = 1, 3, 5, 15, 25, 75
7. 66 = 1, 2, 3, 6, 11, 22, 33, ++
8. 69 = 1, 3, 23, 69
9. 49 = 1, 7, 49
10. 96 = 1, 2, 3, 4, 6, 8, 12, 16, 24, 32, 48, 96

ii 4 5 6 9 10 12 13 iii 1 3 5 7 10 11 14 15

iv
1. Divisionor by 2 and 3
2. Divisionor by 5 and 3
3. Divisionor by 2 and 3
4. Divisionor by 2 and 5
5. Divisionor by 3 and 5
6. Divisionor by 2 and 3.
7. Divisonor by 2 and 3
8. Divisionor by 2 and 3.
9. Divisionor by 2 and 3
10. Divisionor by 2 and 5
11. Divisionor by 5
12. Divisionor by 3
13. Divisionor by 2 and 5

EXERCISE 2.2

i Prime numbers 771, 223, 19, 17, 131, 129, 71

Compound numbers 68, 12, 100, 21, 91, 85, 64

ii
1. 2×2×2×3
2. 2×2×3×3
3. 2×2×2×2×3
4. 3×3×3×3
5. 2×2×3×5
6. 3×5×5
7. 2×2×149
8. 3×3×5×7
9. 2×2×2×2×5×5
10. 2×2×31
11. 2×2×173
12. 11×11
13. 2×2×2×2×3×3×5
14. 3×3×7×13
15. 3×11

iii
1. 2×2×2×2×2×2×2×2
2. 3×5×7
3. 2×2×2×2×2×2×2×7
4. 2×2×2×5×3
5. 3×5×5×5
6. 13×13
7. 2×2×2×3×3
8. 2×2×2×2×3×3
9. 2×2×2×2×2×3
10. 2×2×3×3
11. 2×2×2×2×2×2
12. 2×11
13. 2×2×3×3
14. 2×3×7
15. 2×2×11

EXERCISE 2.3

1. 30
2. 25
3. 5
4. 5
5. 24
6. 11
7. 14
8. 12
9. 24
10. 9
11. 24
12. 11
13. 15
14. 21
15. 10
16. 25
17. 12
18. 35
19. 27
20. 17

EXERCISE 2.4

1. 49
2. 60
3. 19
4. 13
5. 9
6. 24
7. 48
8. 24
9. 18
10. 36
11. 5
12. 7
13. 60
14. 24
15. 11
16. 48
17. 9
18. 49
19. 19
20. 48
21. 54
22. 24
23. 7
24. 13

EXERCISE 2.5

1. 60
2. 900
3. 48
4. 64
5. 586
6. 66
7. 120
8. 525
9. 90
10. 88
11. 784
12. 432
13. 210
14. 648
15. 48
16. 360

EXERCISE 2.6

1. 252
2. 1800
3. 2079
4. 144
5. 168
6. 2160
7. 360
8. 510
9. 9450
10. 1620
11. 76
12. 240
13. 520
14. 264
15. 1872
16. 150
17. 700
18. 96
19. 910
20. 2000
21. 1360

EXERCISE 2.7

1. 48
2. 78
3. 7
4. 12
5. 9
6. 7
7. 15
8. 72

EXERCISE 3.1

i 9, 15, 1, 7, 11, 4, 3, 8, 21, 35, 9, 13, 7, 2

ii 4, 3, 15, 19, 1, 2, 1 16, 4, 6, 17

iii
1. $2\frac{15}{13}$
2. $3\frac{2}{3}$
3. $1\frac{4}{6}$
4. $2\frac{1}{10}$
5. $1\frac{2}{7}$
6. $1\frac{6}{24}$
7. $2\frac{1}{3}$
8. $1\frac{2}{3}$
9. $3\frac{1}{4}$
10. $2\frac{3}{9}$
11. $1\frac{8}{7}$
12. $4\frac{2}{4}$
13. $3\frac{1}{6}$
14. $1\frac{4}{21}$

EXERCISE 3.2

i

1. $\frac{12}{13}, \frac{24}{26}, \frac{36}{39}, \frac{48}{52}, \frac{60}{65}$
2. $\frac{5}{6}, \frac{10}{12}, \frac{15}{18}, \frac{20}{24}, \frac{25}{30}$
3. $\frac{2}{4}, \frac{4}{8}, \frac{6}{2}, \frac{8}{16}, \frac{10}{20}$
4. $\frac{5}{11}, \frac{10}{22}, \frac{15}{33}, \frac{20}{44}, \frac{25}{55}$
5. $\frac{3}{9}, \frac{6}{18}, \frac{9}{27}, \frac{12}{36}, \frac{15}{45}$
6. $\frac{1}{7}, \frac{2}{14}, \frac{3}{21}, \frac{4}{28}, \frac{5}{35}$
7. $\frac{3}{12}, \frac{6}{24}, \frac{9}{36}, \frac{12}{48}, \frac{15}{60}$
8. $\frac{2}{14}, \frac{4}{28}, \frac{6}{42}, \frac{8}{56}, \frac{10}{70}$
9. $\frac{10}{9}, \frac{20}{18}, \frac{30}{27}, \frac{40}{36}, \frac{50}{45}$
10. $\frac{7}{8}, \frac{14}{16}, \frac{21}{24}, \frac{28}{32}, \frac{35}{40}$
11. $\frac{7}{2}, \frac{4}{14}, \frac{6}{21}, \frac{8}{28}, \frac{10}{35}$
12. $\frac{9}{15}, \frac{18}{30}, \frac{27}{45}, \frac{36}{60}, \frac{45}{75}$

ii

1. $\frac{1}{3}$
2. $\frac{2}{6}$
3. $\frac{2}{4}$
4. $\frac{6}{12}$
5. $\frac{1}{3}$
6. $\frac{2}{6}$
7. $\frac{5}{10}$
8. $\frac{1}{2}$

EXERCISE 3.3

i

1. $\frac{1}{3}$
2. $\frac{1}{5}$
3. $\frac{5}{3}$
4. $\frac{1}{2}$
5. $\frac{1}{2}$
6. $\frac{5}{7}$
7. $\frac{3}{4}$
8. $\frac{7}{4}$
9. $\frac{7}{9}$
10. $\frac{1}{3}$
11. $\frac{1}{7}$
12. $\frac{6}{5}$

ii

1. $\frac{5}{6}$
2. $\frac{1}{4}$
3. $\frac{9}{2}$
4. $\frac{6}{12}$
5. $\frac{3}{3}$
6. $\frac{1}{9}$
7. $\frac{12}{9}$
8. $\frac{27}{81}$

iii

1. $\frac{2}{5}$
2. $\frac{3}{7}$
3. $\frac{1}{9}$
4. $\frac{1}{6}$
5. $\frac{11}{20}$
6. $\frac{7}{6}$
7. $\frac{6}{3}$
8. $\frac{8}{82}$

iv

1. $<$
2. $<$
3. $>$
4. $<$
5. $<$
6. $>$
7. $>$
8. $<$

EXERCISE 3.4

1. $4\frac{10}{12}$
2. $\frac{1}{2}$
3. $1\frac{1}{18}$
4. $\frac{11}{16}$
5. 4
6. $1\frac{1}{20}$
7. $1\frac{1}{12}$
8. $1\frac{1}{30}$
9. $\frac{17}{24}$
10. $6\frac{5}{6}$
11. $3\frac{19}{36}$
12. $1\frac{17}{20}$

EXERCISE 3.5

1. $1\frac{11}{24}$
2. $5\frac{22}{33}$
3. $\frac{13}{35}$
4. $\frac{19}{20}$
5. $\frac{1}{6}$
6. $3\frac{1}{4}$
7. $\frac{3}{8}$
8. $\frac{1}{2}$
9. $\frac{41}{56}$
10. $\frac{7}{12}$
11. $\frac{13}{24}$
12. $\frac{11}{20}$

EXERCISE 3.6

1. $\frac{32}{63}$
2. $\frac{876}{415}$
3. $\frac{8}{75}$
4. $\frac{2}{3}$
5. $\frac{893}{40}$
6. $\frac{4}{5}$
7. 27
8. 33
9. $\frac{68}{15}$
10. 6
11. $\frac{1}{3}$
12. $\frac{45}{4}$

EXERCISE 3.7

1. $\frac{30}{7}$
2. 18
3. 1
4. 12
5. $\frac{306}{133}$
6. $\frac{20}{3}$
7. $\frac{4}{3}$
8. 1
9. $\frac{3}{2}$
10. $\frac{21}{20}$
11. $\frac{5}{7}$
12. $\frac{1}{6}$

EXERCISE 3.8

1. $5\frac{21}{40}$
2. $1\frac{7}{8}$
3. $2\frac{6}{12}$
4. $3\frac{3}{20}$
5. $\frac{5}{8}$
6. $\frac{3}{4}$

EXERCISE 4.1

i

1. $1 = 100 = 1 = 0.1$
   $1 = 10 = 2 = 0.02$
   $5 = 5 = 1 = 0.001$
2. $7 = 700 = 2 = 0.2$
   $8 = 80 = 4 = 0.04$
   $7 = 7 = 5 = 0.005$
3. $9 = 900 = 0 = 0.0$
   $1 = 10 = 5 = 0.05$
   $8 = 8 = 6 = 0.006$
4. $7 = 400 = 2 = 0.2$
   $7 = 70 = 1 = 0.01$
   $9 = 9 = 5 = 0.005$
5. $8 = 800 = 0 = 0.0$
   $1 = 10 = 7 = 0.07$
   $5 = 5 = 6 = 0.06$
6. $1 = 100 = 4 = 0.4$
   $0 = 00 = 3 = 0.03$
   $5 = 5 = 7 = 0.007$
7. $1 = 100 = 0 = 0.0$
   $5 = 50 = 5 = 0.05$
   $2 = 2 = 2 = 0.002$
8. $2 = 20 = 1 = 0.2$
   $4 = 4 = 5 = 0.05$
   $= 2 = 0.002$

ii
1. $\frac{1752}{1000}$
2. $\frac{31507}{100}$
3. $\frac{5924152}{10000}$
4. $\frac{715235}{1000}$
5. $\frac{45002}{1000}$
6. $\frac{398347}{1000}$
7. $\frac{315415}{1000}$
8. $\frac{219195}{1000}$

iii
1. 0.159
2. 0.07
3. 0.0215
4. 1.989
5. 0.045
6. 0.02

EXERCISE 4.2

i
1. 5.24
2. 74.559
3. 911.57
4. 609.002
5. 988.847
6. 34.517
7. 1406.161
8. 645.36
9. 434.565
10. 124.87
11. 5.067
12. 5.401

ii
1. 297.988
2. 4.496
3. 561.46
4. 33.144
5. 170.421
6. 4.107
7. 41.56
8. 11.24
9. 5.86
10. 169.718
11. 0.117
12. 6.88

EXERCISE 4.6

1. 206.164
2. 90.15
3. 12.375
4. 4.68
5. 16.27
6. 560.48
7. 28.12
8. 3796.1
9. 2.937
10. 667.6
11. 3.105
12. 142.5
13. 506.52
14. 154
15. 280.28

EXERCISE 4.4

1. 35.32
2. 827.3
3. 107.05
4. 1283.9
5. 109.8
6. 3.06
7. 152.06
8. 1.574
9. 9
10. 2103.09
11. 2.22
12. 9.1
13. 24.08
14. 3.05
15. 303.6

EXERCISE 4.5

1. 93.54 Rupees
2. 10.25 Rupees
3. 0.418
4. 579.90 Rupees
5. 605.12 Rupees
6. 13.9 Meters
7. 2.68 Grams
8. 245.05 Rupees
9. 3.928 Meters
10. 36.15 Rupees
11. 341.92 Rupees
12. 86 Rupees

EXERCISE 5.1

i
1. 1455000 Meters
2. 135000 Meters
3. 479015 Meters
4. 315020 Meters
5. 415030 Meters
6. 29071 Meters

ii
1. 4 Meters 91 Centimeter
2. 8 Meters 10 Centimeter
3. 5 Meters 55 Centimeter
4. 1 Meters 71 Centimeter
5. 9 Meters
6. 7 Meters 71 Centimeter

iii
1. 76 Millimeter
2. 107 Millimeter
3. 82 Millimeter
4. 153 Millimeter
5. 163 Millimeter
6. 174 Millimeter

iv
1. 13 Meters 6 Centimeter
2. 96 Meters 32 Centimeter
3. 162 Kilometer 86 Meters
4. 24 Kilometer 215 Meters
5. 154 Meters 23 Millimeter
6. 406 Kilometer 17 Meters
7. 7 Meters 5 Centimeter
8. 189 Kilometer 87 Meters

EXERCISE 5.2

1. 9 Meters 1 Decimeter
2. 2 Kilometer 05 Meters
3. 3 Meters 6 Centimeter
4. 8 Kilogram 14 Meter
5. 7 Kilogram 1 Meter
6. 1 Centimeter 2 Millimeter
7. 122 Centimeter 9 Millimeter
8. 3 Meter 8 Decimeter 2 Centimeter
9. 377 Kilogram 3 Meter
10. 180 Kilogram 98 Meter
11. 10 Kilogram 64 Meter
12. 70 Kilogram 55 Meter
13. 205 Kilogram 2 Meter
14. 544 Kilogram 75 Meter

EXERCISE 5.3

1. 61 Kilogram 59 Gram
2. 322 Kilogram 71 Gram
3. 619 Kilogram 22 Gram
4. 40 Kilogram 51 Gram
5. 37 Kilogram 969 Gram
6. 16 Kilogram 8 Gram
7. 129 Kilogram 64 Gram
8. 114 Kilogram 27 Gram
9. 881 Kilogram 64 Gram
10. 135 Kilogram 75 Gram
11. 1038 Kilogram 46 Gram
12. 124 Kilogram 26 Gram
13. 735 Kilogram 82 Gram
14. 114 Kilogram 77 Gram

EXERCISE 5.4

1. 17 Kilogram 95 Gram
2. 8 Kilogram 2 Gram
3. 152 Kilogram 1 Gram
4. 1 Kilogram 11 Gram
5. 2 Kilogram 7 Gram
6. 16 Kilogram 26 Gram
7. 5 Kilogram 674 Gram
8. 18 Kilogram 405 Gram
9. 243 Kilogram 2 Gram
10. 55 Kilogram 915 Gram

EXERCISE 5.5

i

1	72	Liter	185	Milliliter	2	64	Liter	867 Milliliter
4	170	Liter	769	Milliliter	5	70	Liter	578 Milliliter
7	114	Liter	377	Milliliter	8	95	Liter	662 Milliliter
10	49	Liter	466	Milliliter	11	84	Liter	567 Milliliter

ii

1	3	Liter	875	Milliliter	2	11	Liter	114 Milliliter
4	26	Liter	74	Milliliter	5	19	Liter	681 Milliliter
7	4	Liter	908	Milliliter	8	10	Liter	678 Milliliter
10	3	Liter	98	Milliliter	11	26	Liter	895 Milliliter