

"NEW-ERA PUBLIC SCHOOL"

CLASS : 7th

SUB :- MATHEMATICS

TERM - II

SESSION :- 2021

SOLVED ASSIGNMENT OF TERM - II (2nd)

LESSON NO :- 03

CHAPTER :- DATA HANDLING

RANGE $\Rightarrow$ The difference between The highest and The lowest value in a set are called range.

i.e. Highest observation - Smallest observation.

MEAN $\Rightarrow$ The mean of a data set is found by adding all numbers in The data set and then dividing by the number of the values in the set.

$$\therefore \text{Mean} = \frac{\text{Sum of observations}}{\text{No. of observations}}$$

EXERCISE NO: 3.1

Q1 $\Rightarrow$ find The range and mean of the following observations

a) 6, 5, 3, 5, 1, 6, 2, 7, 10.

$$\begin{aligned} \text{Sol) Range} &= \text{highest obs.} - \text{smallest observation} \\ &= 10 - 1 \\ &= 9 \end{aligned}$$

$$\text{Mean} = \frac{\text{Sum of observations}}{\text{No. of observations}}$$

$$= \frac{6+5+3+5+1+6+2+7+10}{9}$$

$$= \frac{45}{9}$$

$$= 5.$$

d) 1.2, 2.3, 3.5, 0, 2.6, 4.5, 3.4

Sol) Range = Highest obs. - Smallest observation

$$= 4.5 - 0$$

$$= 4.5$$

Mean = $\frac{\text{Sum of observations}}{\text{No. of observations}}$

$$= \frac{1.2 + 2.3 + 3.5 + 0 + 2.6 + 4.5 + 3.4}{7}$$

$$= \frac{17.5}{7} \Rightarrow 2.5$$

Q2: $\Rightarrow$ find the mean of first ten natural numbers?

Sol:- The first ten natural numbers are.
 1, 2, 3, 4, 5, 6, 7, 8, 9, 10.

$\therefore$ Mean = $\frac{\text{Sum of observations}}{\text{No. of observations}}$

$$= \frac{1+2+3+4+5+6+7+8+9+10}{10}$$

$$= \frac{55}{10} \Rightarrow 5.5$$

Q4: $\Rightarrow$ Ashu Studied 4 hours, 5 hours and 3 hours on Three consecutive days for his final examination. How many hours did he study daily on an average?

Sol) Average = $\frac{\text{Sum of hours}}{\text{No. of hours}}$

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

$$= \frac{12}{3}$$

$$= 4 \text{ hours.}$$

Q5:→ Following are the marks obtained by 16 students of a class in a test in mathematics.

10, 36, 36, 4, 32, 26, 16, 34, 36, 34, 26, 36, 32, 16, 10, 40.

find: a) The range of marks.

b) Mean marks.

c) The marks of one of students were taken wrong instead of 62, 26 were taken. find the actual mean marks.

Sol a)→ Range = Highest obs. - Smallest observation
 $= 40 - 4 = 36$

b) Mean marks = $\frac{\text{Sum of observations}}{\text{No. of observations}}$
 $= \frac{10+36+36+4+32+26+16+34+36+34+26+36+32+16+10+40}{16}$
 $= \frac{424}{16}$
 $= 26.5$

c) New Mean = $\frac{424 + 62 - 26}{16}$
 $= \frac{398 + 62}{16}$
 $= \frac{460}{16} \Rightarrow 28.75$

Q6:→ There is a missing number in the following data having range 11 and mean 8. what is the missing number?

Sol:→ let the missing number be x .

∴ Mean = $\frac{\text{Sum of observations}}{\text{No. of observations}}$

$$\Rightarrow 8 = \frac{8+3+9+7+14+x}{6} \quad \text{by c.m}$$

$$\Rightarrow 8 = \frac{41+x}{6}$$

$$\Rightarrow 8 \times 6 = 41 + x$$

$$\Rightarrow 48 = 41 + x$$

$$\Rightarrow 48 - 41 = x$$

$$\Rightarrow 7 = x$$

$$\Rightarrow x = 7.$$

$$\therefore \text{Range} = 14 - 3 = 11.$$

$\therefore$ The reqd. number is 11.

Q7: $\rightarrow$ The mean of three numbers is 12. Two of the numbers are 9 & 14. What is the third number?

Sol: $\rightarrow$ Let the third number be x .

$$\therefore \text{Mean} = \frac{\text{Sum of observations}}{\text{No. of observations}}$$

$$\Rightarrow 12 = \frac{9+14+x}{3}$$

$$\Rightarrow 12 = \frac{23+x}{3}$$

$$\Rightarrow 12 \times 3 = 23 + x$$

$$\Rightarrow 36 = 23 + x$$

$$\Rightarrow 36 - 23 = x$$

$$\Rightarrow 13 = x$$

$$\text{or } x = 13$$

$\therefore$ The reqd. number is 13.

Q8: $\rightarrow$ The mean of five numbers is 7. After adding one more number, the mean still remains 7. What is the new number?

Sol: $\rightarrow$ Case I:

$$\text{Mean} = 7.$$

$$\text{No. of obs.} = 5$$

$$\therefore \text{Mean} = \frac{\text{Sum of obs.}}{\text{No. of obs.}}$$

$$\Rightarrow \text{Sum of obs.} = \text{Mean} \times \text{No. of observations} = 7 \times 5 = 35.$$

Case II:

Let the new number added be x .

$$\therefore \text{New Mean} = \frac{35+x}{6}$$

$$\Rightarrow 7 = \frac{35+x}{6}$$

$$\Rightarrow 7 \times 6 = 35 + x$$

$$\Rightarrow 42 = 35 + x$$

$$\Rightarrow 42 - 35 = x$$

$$\Rightarrow 7 = x \Rightarrow x = 7$$

$\therefore$ The reqd. no is 7.



EXERCISE No: 3.2

MODE $\Rightarrow$ The mode is the number that appears most frequently in a data set.

MEDIAN $\Rightarrow$ The number in the middle when they are in order. You can find median of a group by:

- 1) Arrange the numbers in order by size.
- 2) If there is an odd number of terms, the median is the center term.
- 3) If there is an even number of terms, add the two middle terms and divide by 2.

Q1: $\Rightarrow$ Find the mode of the following data.

- a) 2, 2, 3, 3, 4, 4, 4, 5, 6, 6, 7

Sol: Mode of this data is 4 because it occurs max (3) times in the set.

- b) 31, 35, 36, 33, 32, 35, 36, 31, 34, 33, 36, 34, 32, 32, 36, 34

Sol: Arrange the data

31, 31, 32, 32, 32, 33, 33, 34, 34, 34, 35, 35, 36, 36, 36, 36

$\therefore$ Mode of the data is 36 because it occurs max (4) times in the set.

Q2: Find the mode of following data.

Marks obtained	30	35	42	43	45	48	80
No. of students	6	3	2	7	3	2	1

Sol: Mode of this data is 43 because it occurs max (7) times in the set.

Q3: Find the median of the following data:

- a) 2, 0, 1, 5, 3, 4, 6, 8, 12, 9, 10.

Sol: Arrange the data in ascending order:

0, 1, 2, 3, 4, 5, 6, 8, 9, 10, 12

Here $n = 11$ (odd)

(n is no. of terms)

$\Rightarrow$ So, the median of the data is 5.

b) 7, 7, 8, 11, 12, 9, 5, 8, 12, 10, 9.

Sol:) Arrange the data in ascending order:
5, 7, 8, 8, 9, 9, 9, 10, 11, 12, 12

Here $n = 11$ (odd)

So, the median of the data is 9.

Q4:) Find the mode & median of the following data:
Sol:) Arrange the data in ascending order:

12, 12, 13, 13, 14, 14, 14, 16, 19.

Mode is 14 because it occurs max (3) times in the set.

Here $n = 09$.

$\therefore$ Median is 14 because middle number is 14.

Q6:) The ages of 12 students of a class are as follows.
14, 14, 15, 14, 14, 14, 15, 14, 14, 15, 15, 14.

find mean, median and mode.

Sol:) Arrange the data in ascending order.
14, 14, 14, 14, 14, 14, 14, 14, 15, 15, 15, 15.

$$\text{Mean} = \frac{\text{Sum of observations}}{\text{No. of observations}}$$

$$= \frac{14+14+14+14+14+14+14+14+15+15+15+15}{12}$$

$$= \frac{172}{12} = 14.33$$

Mode is 14 because it occurs max (8) times in the set.

Median : Here $n = 12$ (even)

$$\text{Median} \Rightarrow \frac{14+14}{2}$$

$$= \frac{28}{2} = 14$$

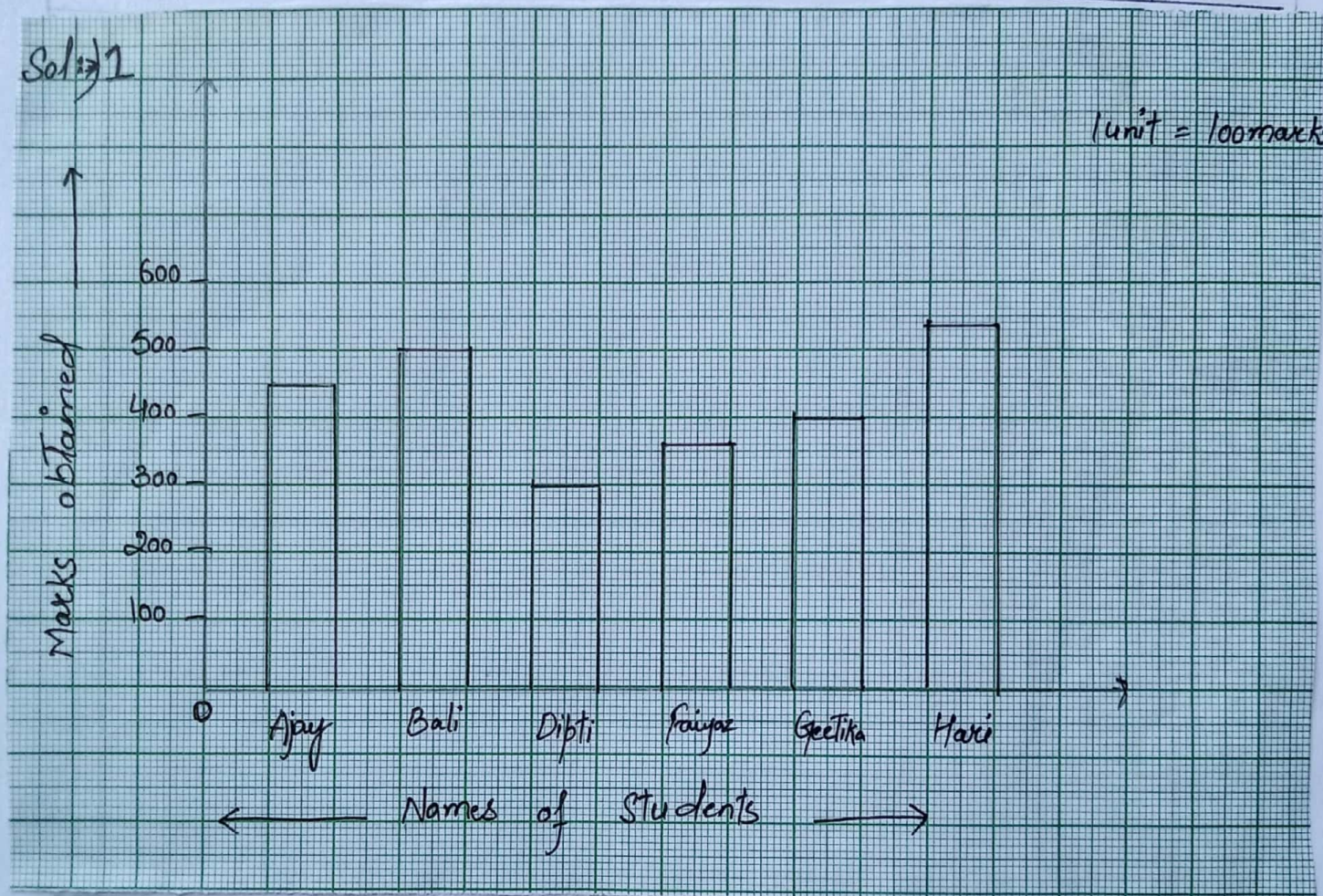
$\Rightarrow$ Median is 14.

Exercise No: 3.3

Q1:) following data gives total marks (out of 600) obtained by six students of a particular class. Represent the data on a bar graph by choosing an appropriate scale of 1 unit = 100 marks.

Students	Ajay	Bali	Dipti	Faiyaz	Greetika	Harri
Marks obtained	450	500	300	360	400	540

Sol: 1



Q2:) Given below is a bar graph showing cars of various colours parked at a particular time, in a parking ground. observe the bar graph & answer the following.

a) How many cars are there together in the parking ground.

Sol) Total cars = $4 + 8 + 6 + 10 + 8 = 36$ cars.

b) How many cars are blue, black and red?

Sol) 10 blue, 8 black, and 6 red.

c) What is the most common colour of cars?

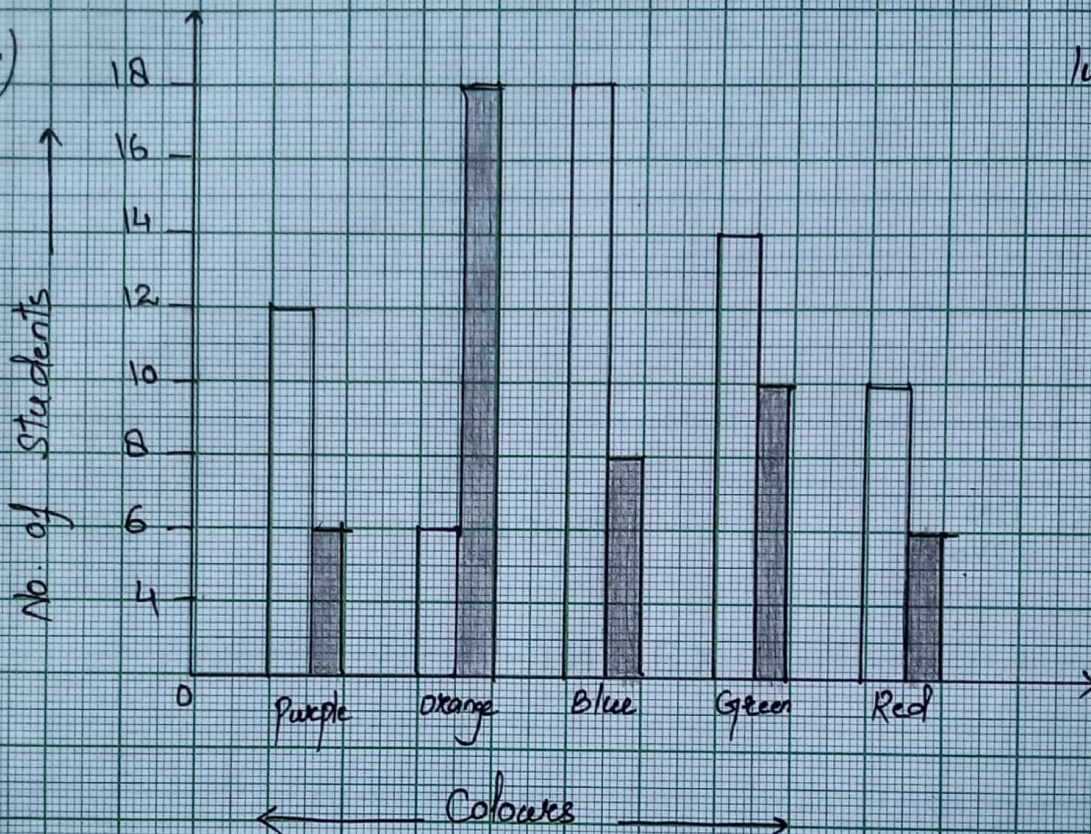
Sol) Blue.

Q4:) Use the table of students telephone choice of colours given below and make a double bar graph.

choice of colours of Telephone.

	Purple	Orange	Blue	Green	Red
like	12	6	18	14	10
Dislike	6	18	8	10	6

4
Sol:)



Unit = 2 Students

Like	
Dislike	

Q5:) The Sale of English & Hindi books in the four consecutive years at a book store are given below

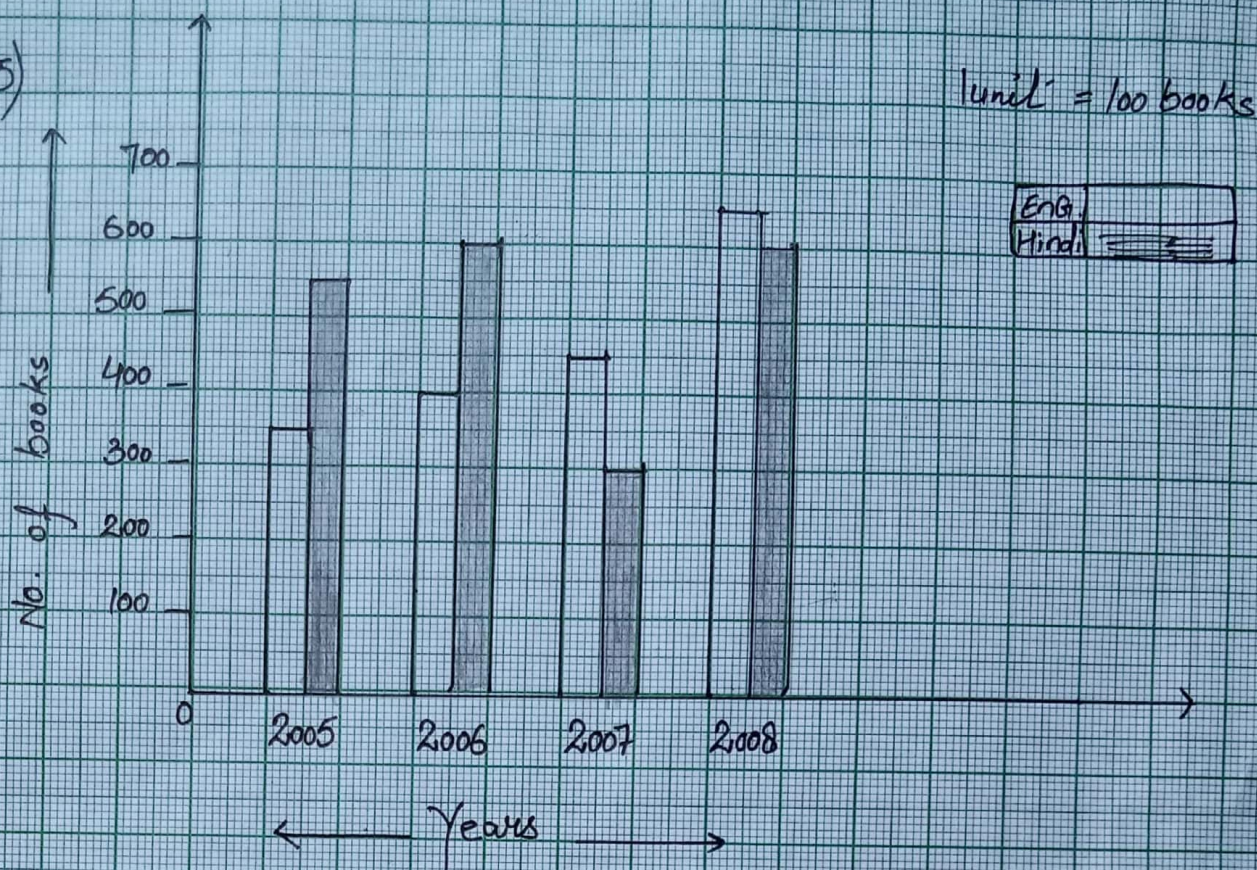
Years	2005	2006	2007	2008
English	350	400	450	650
Hindi	550	600	300	600

a) 2007

b) Yes: In 3 years it has increased by more than 85%.

c) 2008.

Q1: 5)



Exercise No: 3.4

PROBABILITY $\rightarrow$ The extent to which an event is likely to occur, measured by the ratio of the favourable cases to the whole number of cases possible.

Q1:) Here is a bag containing 10 red, 8 white and 2 green cubes. Write certain, likely, unlikely or impossible to describe the probability of picking a cube of:

- white colour $\rightarrow$ likely
- Green colour $\rightarrow$ unlikely.
- Red colour $\rightarrow$ likely
- Blue colour $\rightarrow$ impossible.

Q2:) Write certain, likely, unlikely or impossible for each of the following:

- You are younger today than a year before
- Impossible.

- b) A coin, when tossed will land head up $\rightarrow$ likely -
 c) Tomorrow, i.e. 4th June will be a cloudy day $\rightarrow$ unlikely
 d) On Tossing a dice, a number less than or equal to 6 will appear on the top face of the dice $\rightarrow$ Certain.

Q3:) There are 5 blue marbles, 5 red marbles and 3 green marbles in a bag. A marble without seeing, is picked from the bag. What is the probability that it is:

Sol:) a) A green marble.

Sol:) Total no. of marbles in a bag = $5 + 5 + 3 = 13$
 The probability of.

a) A green marble = $\frac{3}{13}$

b) A red marble = $\frac{5}{13}$

c) A white marble = $\frac{0}{13} = 0$

d) A blue, red or green marble = $\frac{13}{13} = 1$.

Q4:) A coin is tossed to decide which team starts the game. What is the probability that your team will start the game?

Sol:) Coin has two faces, so probability of a team starting the game is $\frac{1}{2}$.

NOTE $\Rightarrow$ The Probability of an event is a number between 0 and 1, where roughly speaking, 0 indicates impossibility of the event and 1 indicates certainty.

LESSON No :- 07

CHAPTER :- CONGRUENCE OF TRIANGLES

CONGRUENCE $\Rightarrow$ Triangles are congruent when they have exactly the same three sides and exactly the same three angles. There are five ways by which we can prove triangles are congruent, they are:

i) SAS (ii) ASA (iii) SSS (iv) AAS (v) RHS.

Ex: No:- 7.1

Q1:) $\triangle ABC$ & $\triangle PQR$ are congruent under the correspondence $ABC \leftrightarrow RQP$. Write the parts of $\triangle ABC$ that correspond to

- a) QR b) $\angle R$
c) PQ d) $\angle P$

Sol:) $\triangle ABC \cong \triangle PQR$.

Hence a) $QR \cong BA$

b) $\angle R \cong \angle A$

c) $PQ \cong CB$

d) $\angle P \cong \angle C$

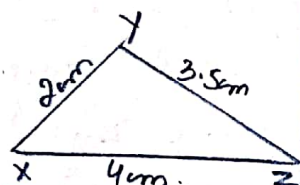
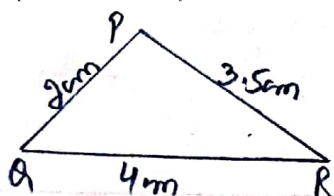
Since $ABC \leftrightarrow RQP$

Q3:) In the given figure, which of the following correspondence is a congruence

a) $PQR \cong \triangle XYZ$

b) $PQR \cong YXZ$

c) $PQR \cong ZYX$



Q2:) If $\triangle XPQ \cong \triangle RST$, write corresponding sides and corresponding angles.

Sol:) $\triangle XPQ \cong \triangle RST$

Hence, corresponding sides

$$XP \cong RS$$

$$PQ \cong ST$$

$$QX \cong TR$$

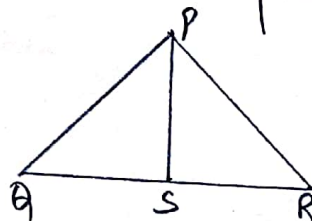
Corresponding angles.

$$\angle X \cong \angle R$$

$$\angle P \cong \angle S$$

$$\angle Q \cong \angle T$$

Q4:) In the given figure, if $\triangle PQS \cong \triangle PRS$. List the corresponding sides and the corresponding angles.



Sol:) $\triangle PQS \cong \triangle PRS$

Hence, corresponding sides

Sol) In $\triangle PAR$ & $\triangle Yxz$

$$PA = Yx$$

$$AR = xz$$

$$PR = Yz$$

$$\therefore \triangle PAR \cong \triangle Yxz$$

$\therefore$ (b) is correct.

$$\Rightarrow PA \cong PR$$

$$\Rightarrow QS \cong RS$$

$$\Rightarrow PS \cong PS$$

Corresponding Angles.

$$\angle QPS \cong \angle RPS$$

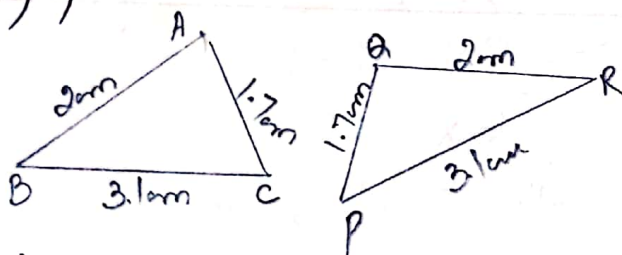
$$\angle PSQ \cong \angle PSR$$

$$\angle PQS \cong \angle PRS$$

Ex. No. 7.2

Q1:) In the given figures, state which pairs of triangles are congruent by SSS congruence criterion. If congruent, write the congruence of triangles in symbolic form.

Sol:) a):



Sol:) In $\triangle ABC$ & $\triangle PQR$.

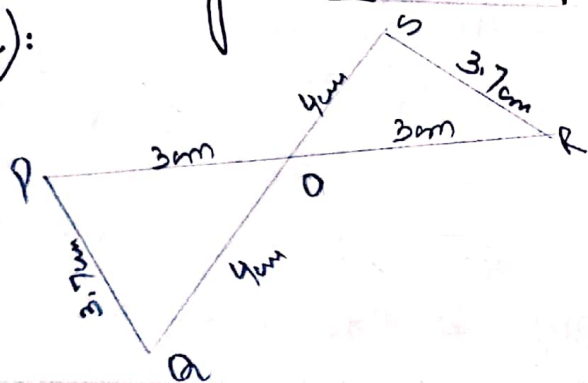
$$AB = QR$$

$$BC = RP$$

$$AC = QP$$

$\therefore \triangle ABC \cong \triangle QRP$ by SSS congruence.

b):



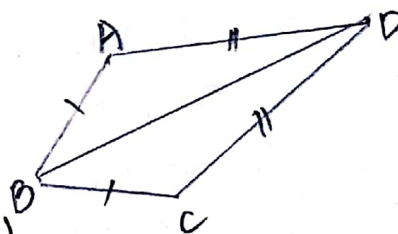
Q2:) In the given figure, $AD = CD$ and $AB = CB$.

a) State the three pairs of equal sides in $\triangle ABD$ & $\triangle CBD$

b) Is $\triangle ABD \cong \triangle CBD$? why

c) Does BD bisect $\angle ABC$?

Give reason.



Sol:) a)

In $\triangle ABD$ & $\triangle CBD$

$$AD = CD$$

$$AB = CB$$

$$BD = BD$$

b) Yes, $\triangle ABD \cong \triangle CBD$ by SSS congruence.

c) Yes, BD bisects $\angle ABC$.

$$\Rightarrow \angle ABD = \angle CBD$$

$\therefore$ All corresponding angles are equal.

Solc): In ΔPOQ & ΔROS

$$PO = OS = 3\text{cm}$$

$$PQ = RS = 3.7\text{cm}$$

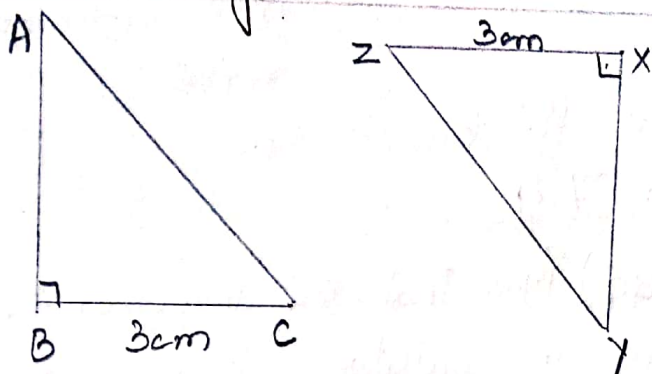
$$OQ = OS = 4\text{cm}$$

$$\therefore \Delta POQ \cong \Delta ROS$$

by SSS congruence.

Ex: No :- 7.3

Q1:) In the given figure, $\angle B = \angle x = 90^\circ$ and side $BC = xz$. what additional information is reqd. to make $\Delta ABC \cong \Delta xyz$ by RHS criteria.



Sol) In ΔABC & Δxyz .

$$\angle B = \angle x = 90^\circ$$

$$BC = xz$$

$$AC = zy \quad (\text{additional information})$$

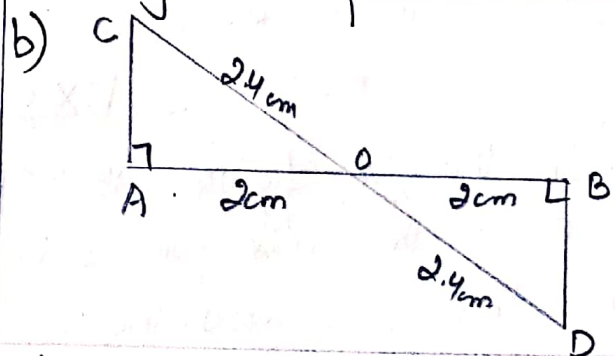
Then, $\Delta ABC \cong \Delta zxy$

by RHS congruence.

Q3:) In the given figure, $AB \perp QR$. $AC \perp QR$ and $QC = QB$.

a) Is $\Delta AQB \cong \Delta AQC$?
Give reasons in support of your answer?

Q2:) In the given figure, state which pairs of triangles are congruent by RHS congruence criteria. If congruent, write the congruence of triangles in symbolic form.



Sol): In ΔAOC & ΔBOD

$$\angle A = \angle B = 90^\circ$$

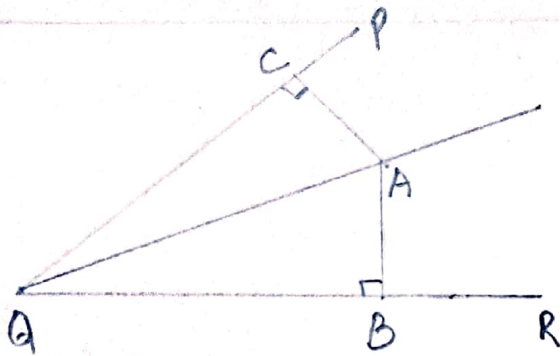
$$AO = BO$$

$$CO = DO$$

$\therefore \Delta AOC \cong \Delta BOD$

by RHS congruence.

Q4:) If ΔPQR is an isosceles triangle such that $PQ = PR$. Then prove that the altitude PS from P on QR bisects QR .



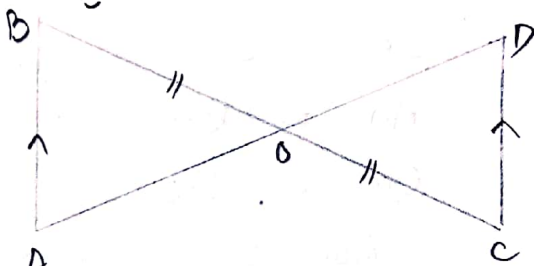
Sol: In $\triangle ABQ$ & $\triangle ACQ$.
 $\angle B = \angle C = 90^\circ$
 $QB = QC$
 $QA = QA$ - common
 $\therefore \triangle ABQ \cong \triangle ACQ$ by
 RHS Congruence.

b) which angle is equal to $\angle AQB$.

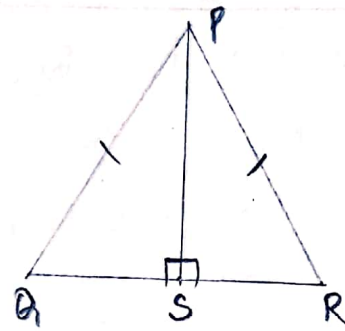
Sol) $\angle AQC = \angle AQB$ - corresponding angles are equal.

Ex: No:- 7.4

Q4:) In the given figure, $AB \parallel CD$.
 If O is the mid-point of BC.
 Show that O is also the mid-point of AD.



Sol:) In given figure $AB \parallel CD$.
 $\therefore$ In $\triangle AOB$ & $\triangle COD$.
 $\angle BAO = \angle CDO$ - alternate
 $\angle AOB = \angle DOC$ - VOA.
 $BO = CO$ - given.
 $\therefore \triangle AOB \cong \triangle COD$.

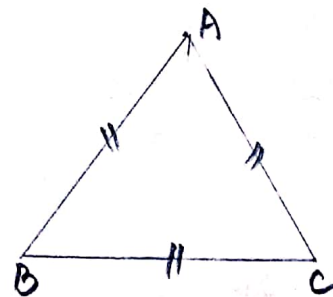


Sol:) In $\triangle PQS$ & $\triangle PRS$.
 $\angle PSQ = \angle PSR = 90^\circ$
 $PQ = PR$
 $PS = PS$ - common
 $\therefore \triangle PQS \cong \triangle PRS$
 by RHS Congruence.
 also $QS = RS$ - corresponding sides are equal.

$\Rightarrow PS$ bisects QR .

Q5:) Prove that the three angles of an equilateral triangle are equal.

Sol:)



Sol:) ABC is an equilateral $\triangle$.
 Then, $AB = AC$
 $\Rightarrow \angle B = \angle C$ - $\because$ equal sides have equal angles opp. to it.
 also $AC = BC$.

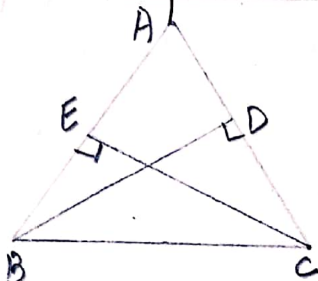
by ASA Congruence.

Hence $AO = DO$

$\therefore$ corresponding parts are equal.

So, O is also the mid-point of AD.

Q6:) In the given figure, $\triangle ABC$ is an isosceles triangle in which $AB = AC$. If $BD \perp AC$ and $CE \perp AB$, prove that $BD = CE$



Sol:) $\triangle ABC$ is an isosceles.

$\Rightarrow AB = AC$.

$\Rightarrow \angle B = \angle C$ — [equal sides have equal angles opp. to it].

Now in $\triangle EBC$ & $\triangle DCB$.

$$\angle BEC = \angle BDC = 90^\circ$$

$$\angle EBC = \angle DCB$$

also $BC = BC$ — common

$\Rightarrow \therefore \triangle EBC \cong \triangle DCB$

by AAS Congruence.

$\Rightarrow$ Hence $BD = CE$ — $\therefore$

Corresponding parts are equal.

$\Rightarrow \angle A = \angle B$ — ii

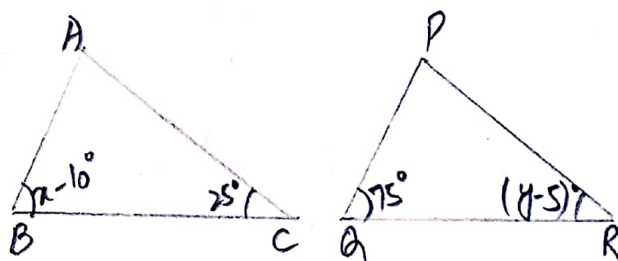
also $AB = BC$

$\Rightarrow \angle A = \angle C$ — iii

from (i), (ii) & (iii) we get $\angle A = \angle B = \angle C$.

Hence proved.

Q7:) In the given figure, the triangles are congruent. Find the value of x & y .



Sol:) In the given figure.

$\triangle ABC \cong \triangle PQR$

$\Rightarrow \angle B = \angle Q$

$$\Rightarrow x - 10^\circ = 75^\circ$$

$$\Rightarrow x = 75^\circ + 10^\circ$$

$$\Rightarrow x = 85^\circ$$

also $\angle C = \angle R$.

$$\Rightarrow 25^\circ = y - 5^\circ$$

$$\Rightarrow 25^\circ + 5^\circ = y$$

$$\Rightarrow 30^\circ = y$$

$$\text{or } y = 30^\circ$$

$$\Rightarrow x = 85^\circ \text{ \& } y = 30^\circ$$

LESSON No :- 08CHAPTER : COMPARING QUANTITIESEx. No :- 8.1

Q1:) write each of the following in three different forms.

a) 5 stamps to 3 stamps

Sol) 5 to 3

$$\frac{5}{3} \text{ or } 5:3$$

c) 16 beads to 7 beads.

Sol) 16 to 7.

$$\Rightarrow \frac{16}{7} \text{ or } 16:7.$$

Q2:) find the ratio in the simplest form:

a) ₹ 5 to 50 paise

Sol:) we know ₹ = 100p

$$\Rightarrow ₹ 5 = 500p.$$

$$\Rightarrow \frac{500}{50} = \frac{10}{1} \Rightarrow 10:1$$

c) 10 kg to 240 g.

Sol:) we know 1 kg = 1000g

$$\therefore 10 \text{ kg} = 10000g.$$

$$\Rightarrow \frac{10000}{240} = \frac{125}{3} \quad (\text{by } 8)$$

$$\Rightarrow \frac{125}{3} \text{ or } 125:3$$

Q4:) write each ratio in the simplest form:

a) $\frac{10}{45}$

c) $16:40$

e) $12:30$

Sol:) $\frac{10}{45}$

Sol:) $\frac{16}{40}$

Sol:) $\frac{12}{30}$

$$\Rightarrow \frac{2}{9}$$

$$\Rightarrow \frac{2}{5} \text{ or } 2:5$$

$$\Rightarrow \frac{2}{5} \text{ or } 2:5$$

Q5:) complete each pair of equivalent ratios:

a) $\frac{1}{4} = \frac{\square}{12}$

c) $\frac{15}{25} = \frac{\square}{5}$

Sol: $\frac{1}{4} = \frac{x}{12}$

Sol:) $\frac{15}{25} = \frac{x}{5}$

$$\Rightarrow 4x = 1 \times 12$$

$$\Rightarrow 25x = 15 \times 5$$

$$\Rightarrow x = \frac{12}{4} = 3$$

$$\Rightarrow x = \frac{75}{25} = 3$$

$$\Rightarrow x = 3$$

$$\Rightarrow x = 3$$

Ex: No:- 8.2

Q1:) find the rate per unit of time in each of the following:

a): 15 km in 3 hours

Sol: Distance = 15 km
Time = 3 hours

$$\therefore \text{Speed} = \frac{\text{Distance}}{\text{Time}}$$

$$= \frac{15 \text{ km}}{3 \text{ h}}$$

$$= 5 \text{ km/h}$$

c): 50 km in 5 hours.

Sol: Distance = 50 km
Time = 5 hours

$$\therefore \text{Speed} = \frac{\text{Distance}}{\text{Time}}$$

$$= \frac{50 \text{ km}}{5 \text{ h}}$$

$$= 10 \text{ km/h.}$$

Q2:) find the distance travelled in:

a) 3 hours at a speed of 60 km/h

Sol: Speed = 60 km/h.
Time = 3 hours

$$\therefore \text{Speed} = \text{Distance} / \text{Time}$$

$$\Rightarrow \text{Distance} = \text{Speed} \times \text{Time}$$

$$= 60 \text{ km/h} \times 3 \text{ h}$$

$$= 60 \text{ km} \times 3$$

$$= 180 \text{ km.}$$

c) 10 minutes at a speed of 8 m/min

Sol: Speed = 8 m/min
Time = 10 min.

$$\therefore \text{Speed} = \text{Distance} / \text{Time}$$

$$\Rightarrow \text{Distance} = \text{Speed} \times \text{Time}$$

$$= 8 \text{ m} \times 10 \text{ min}$$

$$= 8 \text{ m} \times 10$$

$$= 80 \text{ m.}$$

Q3:) How long will it take to cover a distance of:

a) 75 km at a speed of 25 km/h

Sol: Distance = 75 km
Speed = 25 km/h.

$$\therefore \text{Speed} = \frac{\text{Distance}}{\text{Time}}$$

$$\Rightarrow \text{Time} = \frac{\text{Distance}}{\text{Speed}}$$

$$= \frac{75 \text{ km}}{25 \text{ km/h}}$$

$$= 3 \text{ hours.}$$

b): 200 km at a speed of 90 km/h

Sol: Distance = 200 km.
Speed = 90 km/h.

$$\therefore \text{Speed} = \frac{\text{Distance}}{\text{Time}}$$

$$\Rightarrow \text{Time} = \frac{\text{Distance}}{\text{Speed}}$$

$$= \frac{200 \text{ km}}{90 \text{ km/h}}$$

$$= \frac{200}{90} \text{ km} \times \frac{\text{h}}{\text{km}}$$

$$\Rightarrow 20/9 \text{ h.}$$

Q4:) Sushma took 2 hours to go 50 km on a slow train. At that rate, how long will it take to complete her 75 km trip.

Sol:)

Distance	Time
50	2
75	x

Using direct Variation

$$\Rightarrow \frac{50}{75} = \frac{2}{x} \quad \text{--- by cm.}$$

$$\Rightarrow 50x = 2 \times 75$$

$$\Rightarrow x = \frac{2 \times 75}{50} = 3$$

$$\Rightarrow x = 3$$

$\therefore$ Time reqd. is 3 hours.

Q8:) A pile of 400 sheets of paper is 6 cm thick. How thick is a pile having 160 sheets.

Sol:)

Sheets	thickness
400	6
160	x

Using direct Variation

$$\Rightarrow \frac{400}{160} = \frac{6}{x}$$

$$\Rightarrow 400x = 6 \times 160$$

$$\Rightarrow x = \frac{6 \times 160}{400} = 2.4$$

$$\Rightarrow x = 2.4 \text{ cm.}$$

Q6:) The cost of 15 articles is ₹ 210. What is the cost of 25 articles.

Sol:)

cost	Articles
210	15
x	25

Using direct Variation.

$$\frac{210}{x} = \frac{15}{25}$$

$$\Rightarrow 15x = 210 \times 25$$

$$\Rightarrow x = \frac{210 \times 25}{15} = 350$$

$$\Rightarrow x = 350$$

$$\Rightarrow x = 350$$

$\therefore$ Cost of 25 articles is ₹ 350.

Q10:) A fort has food items for 500 people for 20 days. How many days will the food items last if there are 250 people.

Sol:)

People	days
500	20
250	x

Using inverse Variation

$$\Rightarrow \frac{500}{250} = \frac{x}{20}$$

$$\Rightarrow 250x = 500 \times 20$$

$$\Rightarrow x = \frac{500 \times 20}{250} = 40$$

∴ Thickness reqd.
is 2.4cm.

$$\Rightarrow x = 2 \times 20$$

$$\Rightarrow x = 40.$$

∴ food items will last for 40 days.

Q12:) 20 women reap a field in 60 days. For reaping the same field in 15 days. How many women should be engaged?

Q14:) A piece of work is to be completed in 18 months. If 315 men finish it in 16 mnts how many men will be reqd. to finish it on Time?

Sol:)

Women	days
20	60
x	15

Sol:)

Men	Months
x	18
315	16

using inverse Variation

using inverse Variation

$$\Rightarrow \frac{20}{x} = \frac{15}{60}$$

$$\Rightarrow \frac{x}{315} = \frac{16}{18}$$

$$\Rightarrow 15x = 20 \times 60$$

$$\Rightarrow x = \frac{20 \times 60}{15} = 80$$

$$\Rightarrow 18x = 16 \times 315$$

$$\Rightarrow x = \frac{16 \times 315}{18} = 280$$

$$\Rightarrow x = 20 \times 4$$

$$\Rightarrow x = 80.$$

So, 80 women are reqd.

$$\Rightarrow x = 8 \times 35$$

$$\Rightarrow x = 280.$$

So, 280 men are reqd.

Note :- Ex: 8.3 is deleted.

Ex. No: 8.4

Q1:) write each of the following fractions as a percent:

a) $\frac{4}{5}$

c) $\frac{1}{4}$

e) $\frac{3}{25}$

Sol:) $\frac{4}{5} \times \frac{100}{100} = 80\%$

Sol:) $\frac{1}{4} \times \frac{100}{100} = 25\%$

Sol:) $\frac{3}{25} \times \frac{100}{100} = 12\%$

$$\Rightarrow \frac{4 \times 20}{100}$$

$$\Rightarrow \frac{25}{100}$$

$$\Rightarrow 3 \times \frac{4}{100}$$

$$\Rightarrow \frac{25}{100}$$

$$\Rightarrow 25\%$$

$$\Rightarrow \frac{12}{100}$$

$$\Rightarrow 25\%$$

$$\Rightarrow 12\%$$

Q2:) Write each of the following percents as a fraction in the simplest form:

a) 6%

Sol:) $\frac{6}{100} \times \frac{25}{25}$

$$\Rightarrow \frac{3}{50}$$

c) 15%

Sol:) $\frac{15}{100} \times \frac{2}{2}$

$$\Rightarrow \frac{3}{20}$$

e) 67%

Sol:) $\frac{67}{100}$

$$\Rightarrow \frac{67}{100}$$

Q3:) Convert each of the following ratios into a percent:

a) 3:10

Sol:) $\frac{3}{10} \times \frac{10}{10}$

$$\Rightarrow \frac{30}{100}$$

$$\Rightarrow 30\%$$

c) 19:25

Sol:) $\frac{19}{25} \times \frac{4}{4}$

$$\Rightarrow \frac{76}{100}$$

$$\Rightarrow 76\%$$

e) 1:2

Sol:) $\frac{1}{2} \times \frac{50}{50}$

$$\Rightarrow \frac{50}{100}$$

$$\Rightarrow 50\%$$

Q4:) Convert each of the following decimals into percent:

a) 0.37

Sol:) 0.37

$$\Rightarrow \frac{37}{100}$$

$$\Rightarrow 37\%$$

c) 0.156

Sol:) $\frac{156}{1000}$

$$\Rightarrow \frac{156}{100} \times \frac{1}{10}$$

$$\Rightarrow \frac{15.6}{100} \Rightarrow 15.6\%$$

e) 1.05

Sol:) $\frac{105}{100}$

$$\Rightarrow 105\%$$

Q5:) Write each of the following percent as a decimal:

a) 11.4%

Sol:) $\frac{11.4}{100}$

c) 75%

Sol:) $\frac{75}{100}$

e) 0.2%

Sol:) $\frac{2}{100}$

$$\Rightarrow 0.114$$

$$\Rightarrow 0.75$$

$$e) 0.02$$

Q7): There are 50 students in a class. Eighteen of them are girls and the rest are boys. What percent of the students are girls. What % of the students are boys?

Sol: Total no. of students = 50

No. of girls = 18.

No. of boys = $50 - 18 = 32$.

$$\therefore \% \text{ of girls} = \frac{\text{No. of girls}}{\text{Total students}} \times 100$$

$$= \frac{18}{50} \times 100$$

$$= 18 \times 2$$

$$= 36\%$$

$$\therefore \% \text{ of boys} = \frac{\text{No. of boys}}{\text{Total students}} \times 100$$

$$= \frac{32}{50} \times 100$$

$$= 32 \times 2$$

$$= 64\%$$

Q9): Students of a class are selling tickets for the school concert. All the students have the same no. of tickets to sell. Abhinav sold $\frac{2}{5}$, Smriti sold 48% and Arvind sold 0.55 of the tickets. Who sold the maximum number of tickets.

$$\text{Sol: Abhinav sold} = \frac{2}{5}$$

$$= \frac{2}{5} \times \frac{20}{20}$$

$$= \frac{40}{100} = 40\%$$

$$\therefore \text{Smriti sold} = 48\%$$

$$\text{Arvind sold} = 0.55$$

$$= \frac{55}{100}$$

$$= 55\%$$

$\therefore$ So, Arvind sold max. number of tickets.

Ex. No:- 8.5

Q1): Find:

a) 10% of 60

$$\text{Sol: } \frac{10}{100} \times 60$$

$$\Rightarrow 6$$

c) 10% of 42.5

$$\text{Sol: } \frac{10}{100} \times 42.5$$

$$\Rightarrow 4.25$$

e): 15% of 50

$$\text{Sol: } \frac{15}{100} \times 50$$

$$\Rightarrow 15/2$$

$$\Rightarrow 7.5$$

Q2:) what percent of :

a) 10 is 2?

Sol:) let $x\%$ of 10 = 2

$$\Rightarrow \frac{x}{100} \times 10 = 2$$

$$\Rightarrow \frac{x}{10} = 2$$

$$\Rightarrow x = 2 \times 10$$

$$\Rightarrow x = 20.$$

$\therefore x$ is 20%.

Q3:) Find the Quantity of which :

a) $6\frac{1}{4}\%$ is 2.

Sol:) $\frac{25}{4}\%$ of $x = 2$.

$$\Rightarrow \frac{25}{4} \times \frac{1}{100} x = 2$$

$$\Rightarrow \frac{x}{16} = 2$$

$$\Rightarrow x = 16 \times 2$$

$$\Rightarrow x = 32.$$

c) 200 is 2

Sol:) let $x\%$ of 200 = 2.

$$\Rightarrow \frac{x}{100} \times 200 = 2$$

$$\Rightarrow 2x = 2$$

$$\Rightarrow x = \frac{2}{2}$$

$$\Rightarrow x = 1$$

$\therefore x$ is 1%.

c) 7% is ₹ 343.

Sol:) $\frac{7}{100}$ of $x = 343$

$$\Rightarrow \frac{7x}{100} = 343$$

$$\Rightarrow 7x = 343 \times 10$$

$$\Rightarrow x = \frac{343 \times 100}{7}$$

$$\Rightarrow x = 49 \times 100$$

$$\Rightarrow x = 4900$$

Q5:) Anjana scored 64 marks out of 80. what % of marks did she scores?

Sol:) Max. Marks = 80.

Marks scored = 64.

$\therefore \% \text{ of marks} = \frac{\text{M. obtained}}{\text{M. marks}} \times 100$

$$= \frac{64}{80} \times 100$$

$$= 80$$

Q7:) The monthly rent of a house ₹ 2500 to ₹ 3000. what is the % increase in the rent?

Sol:) Original rent = ₹ 2500

New rent = ₹ 3000.

$$\text{Increase in rent} = 3000 - 2500 = 500.$$

$$= 8 \times 10$$

$$= 80\%$$

Q9:) A pool has 10 lanes.
During a swim meet, 80%
of the lanes are used.
How many lanes are not
used?

Sol:) No. of lanes = 10
% of lanes used = 80%.

$$\therefore \text{No. of lanes used}$$

$$= 80\% \text{ of } 10$$

$$= \frac{80}{100} \times 10$$

$$= 8$$

$$\therefore \text{No. of lanes not used}$$

$$= 10 - 8$$

$$= 2$$

Q13:) In an examination, 7%
of the candidates failed
and 1116 passed. How
many candidates did appear
in the examination?

Sol:) Let total number of
candidates be x .

$$\text{Then, } 7\% \text{ of } x + 1116 = x$$

$$\Rightarrow \frac{7}{100}x + 1116 = x$$

$$\therefore \% \text{ increase} = \frac{\text{Increase in Rent}}{\text{original Rent}} \times 100$$

$$= \frac{20}{500} \times 100$$

$$= 20\%$$

Q10:) 10% of the 440 people who
came to see a circus show had
free passes to get in. How many
people had free passes? How
many people had to pay to get in?

Sol:) Total no. of people = 440
% of people having free passes = 10%
 $\therefore$ No. of people having free
passes = 10% of 440

$$= \frac{10}{100} \times 440$$

$$= 44$$

$$\therefore \text{people who had to pay to get}$$

$$\text{in} = 440 - 44$$

$$= 396$$

Q15:) The price of an almirah is
increased by 8%. If the present
price is ₹ 1080, find its
original price?

Sol:) Let the original price
of almirah be x .

$$\text{New price} = ₹ 1080$$

$$\text{Increase \%} = 8\%$$

$$\Rightarrow \frac{7x}{100} + 1116 = x$$

$$\Rightarrow 1116 = \frac{x}{1} - \frac{7x}{100}$$

$$\Rightarrow 1116 = \frac{100x - 7x}{100}$$

$$\Rightarrow 1116 = \frac{93x}{100}$$

$$\Rightarrow 93x = 1116 \times 100$$

$$\Rightarrow x = \frac{1116 \times 100}{93}$$

$$\Rightarrow x = 12 \times 100$$

$$\Rightarrow x = 1200.$$

$\therefore$ 1200 candidates appeared in the examination.

Q16:) An alloy is made 37% copper, 31% Zinc & rest nickel. find the weight of nickel in 650g of alloy?

Sol): % of copper = 37%.

% of Zinc = 31%.

$$\begin{aligned} \text{\% of nickel} &= [100 - (37 + 31)]\% \\ &= 100 - 68\% \\ &= 32\% \end{aligned}$$

Amount of Alloy = 650g.

$$\begin{aligned} \therefore \text{weight of nickel} &= 32\% \text{ of } 650\text{g} \\ &= \frac{32}{100} \times 650 \\ &= 208\text{g}. \end{aligned}$$

Then, $x + 8\% \text{ of } x = 1080$

$$\Rightarrow \frac{x}{1} + \frac{8x}{100} = 1080$$

$$\Rightarrow \frac{100x + 8x}{100} = 1080$$

$$\Rightarrow \frac{108x}{100} = 1080$$

$$\Rightarrow x = \frac{1080 \times 100}{108}$$

$$\Rightarrow x = 10 \times 100$$

$$\Rightarrow x = 1000.$$

$\therefore$ Original price of almirah is ₹ 1000.

Q17): In fabric, cotton and synthetic fibres are in the ratio 1:4. what is the % of synthetic fibre in the fabric.

Sol): Cotton : Synthetic = 1:4

$$\Rightarrow 1 + 4 = 5$$

$$\therefore \text{Synthetic \%} = \frac{4}{5} \times 100$$

$$= 4 \times 20$$

$$= 80\%.$$

$$\therefore \text{Cotton \%} = \frac{1}{5} \times 100$$

$$= 20\%.$$

Ex. No :- 8.6

Note $\Rightarrow$ 1) when $Sp > cp$, there is profit.

$$\text{profit \%} = \frac{\text{Profit}}{cp} \times 100$$

2) when $Sp < cp$, there is loss.

$$\text{loss \%} = \frac{\text{loss}}{cp} \times 100.$$

$$3) \text{ profit} = Sp - cp.$$

$$4) \text{ loss} = cp - Sp.$$

Ex : No : 8.6

Q1): find the gain (profit) / loss percentage, when.

a) $cp = ₹ 1500$; $Sp = ₹ 1650$

Sol): Since $Sp > cp$. therefore profit
 $\therefore \text{profit} = Sp - cp$
 $= 1650 - 1500$
 $= 150.$

$$\therefore \text{profit \%} = \frac{\text{Profit}}{cp} \times 100$$

$$= \frac{150}{1500} \times 100$$

$$= 10\%.$$

c) $cp = ₹ 400$; $Sp = 360$

Sol): Since $Sp < cp$. $\therefore$ loss
 $\therefore \text{loss} = cp - Sp$
 $= 400 - 360$
 $= 40.$

$$\therefore \text{loss \%} = \frac{\text{loss}}{cp} \times 100$$

$$= \frac{40}{400} \times 100$$

$$= 10\%.$$

Q2): find the selling price when:

a) $cp = ₹ 620$; $\text{Gain} = 12\%$

Sol): $cp = ₹ 620$, $\text{Gain} = 12\%$

$$\text{Gain} = 12\% \text{ of } cp$$

$$= \frac{12}{100} \times 620$$

$$= 372/5$$

$$= ₹ 74.4$$

$$\therefore Sp = cp + \text{Gain}$$

$$= ₹ 620 + ₹ 74.4$$

$$= ₹ 694.4$$

b) $cp = ₹ 740$; $\text{loss} = 7\%$

Sol): $\text{loss} = 7\% \text{ of } cp$
 $= \frac{7}{100} \times 740$

$$= \frac{7}{5} \times 37 = \frac{259}{5}$$

$$= ₹ 51.8$$

$$\therefore Sp = cp - \text{loss}$$

$$= ₹ 740 - ₹ 51.8$$

$$= ₹ 688.20$$

Q3): Find the cp. when:

a) $Sp = ₹ 810$; loss = 10%.

Sol): let cp be x .

Then, $Sp = cp - \text{loss}$

$\Rightarrow 810 = x - 10\% \text{ of } cp$

$\Rightarrow 810 = x - \frac{10}{100}x$

$\Rightarrow 810 = \frac{100x - 10x}{100}$

$\Rightarrow 810 = \frac{90x}{100}$

$\Rightarrow 90x = 810 \times 100$

$\Rightarrow x = \frac{810 \times 100}{90}$

$\Rightarrow x = 9 \times 100$

$\Rightarrow x = 900$

$\therefore cp = ₹ 900$

Q5): A sofa set was bought for ₹ 1800 & sold at a loss of 25%. What was the sp?

Sol): cp of sofa set = ₹ 1800

loss = 25%

$\Rightarrow \text{loss} = 25\% \text{ of } cp$

$= \frac{25}{100} \times 1800$

$= 25 \times 18$

$= 450$

$\therefore Sp = cp - \text{loss}$

$= 1800 - 450$

$= ₹ 1350$

b) $Sp = ₹ 756$; Gain = 8%.

Sol): let cp be x .

Then, $Sp = cp + \text{gain}$

$\Rightarrow 756 = x + 8\% \text{ of } cp$

$\Rightarrow 756 = x + \frac{8}{100}x$

$\Rightarrow 756 = \frac{100x + 8x}{100}$

$\Rightarrow 756 = \frac{108x}{100}$

$\Rightarrow 108x = 756 \times 100$

$\Rightarrow x = \frac{756 \times 100}{108}$

$\Rightarrow x = 7 \times 100$

$\Rightarrow x = 700$

$\therefore cp = ₹ 700$

Q6): A shopkeeper buys an almirah for ₹ 850. The transport charges are ₹ 40. He sells it at a gain of 10%. What is the sp?

Sol): cp of almirah = ₹ 850

Transport charges = ₹ 40

$\therefore \text{Total } cp = ₹ 850 + 40$

$= ₹ 890$

$\therefore \text{Gain} = 10\% \text{ of } cp$

$= \frac{10}{100} \times 890 = 89$

$\therefore Sp = cp + \text{Gain}$

$= ₹ 890 + 89$

$= ₹ 979$

Q9): Joseph bought a scooter for ₹ 8400. He sold it at a gain of 6%. At what price did he sell the scooter?

Sol): CP of scooter = ₹ 8400.

Gain = 6%

$$\therefore \text{Gain} = 6\% \text{ of CP} \\ = \frac{6}{100} \times 8400$$

$$= 6 \times 84$$

$$= 504.$$

$$\therefore \text{SP} = \text{CP} + \text{Gain} \\ = 8400 + 504 \\ = ₹ 8904.$$

Q14): Amina buys a book for ₹ 280. He sells it at a loss of 15%. How much does she sell it for?

Sol): CP of book = ₹ 280
Loss = 15%

$$\therefore \text{Loss} = 15\% \text{ of CP} \\ = \frac{15}{100} \times 280$$

$$= 3 \times 14$$

$$= ₹ 42$$

$$\therefore \text{SP} = \text{CP} - \text{Loss} \\ = 280 - 42 \\ = ₹ 238$$

Q9): A fan is sold for ₹ 1288. If the gain is $\frac{1}{6}$ of the CP of the fan, what is the gain percentage?

Sol): SP of fan = ₹ 1288.

Let CP of fan be x.

$$\text{So, gain} = \frac{1}{6} \text{ of CP} \\ = \frac{x}{6}.$$

$$\therefore \text{SP} = \text{CP} + \text{Gain}$$

$$1288 = x + \frac{x}{6}$$

$$\Rightarrow 1288 = \frac{6x + x}{6}$$

$$\Rightarrow 1288 = \frac{7x}{6}$$

$$\Rightarrow 7x = 1288 \times 6$$

$$\Rightarrow 7x = \frac{1288 \times 6}{7} \quad 184$$

$$\Rightarrow x = 184 \times 6$$

$$\Rightarrow x = 1104.$$

$$\therefore \text{CP of fan} = ₹ 1104.$$

$$\text{also Gain} = \text{SP} - \text{CP} \\ = 1288 - 1104 = ₹ 184$$

$$\therefore \text{Gain \%} = \frac{\text{Gain}}{\text{CP}} \times 100$$

$$= \frac{184}{1104} \times 100$$

$$= \frac{18400}{1104}$$

$$= 16.67\%$$

Ex: 8.7

NOTE: $\Rightarrow$ $S.I = \frac{P \times R \times T}{100}$

2) Amount = $P + S.I$

Q1): Find the interest when:

a) $P = ₹ 1000$; $T = 1y$; $R = 8\% \text{ p.a}$

Sol): $S.I = \frac{P \times R \times T}{100}$
 $= \frac{1000 \times 8 \times 1}{100}$
 $= 10 \times 8$
 $= 80.$

b): $P = ₹ 640$; $T = 2y$; $R = 10\% \text{ pa}$

Sol): $S.I = \frac{P \times R \times T}{100}$
 $= \frac{640 \times 10 \times 2}{100}$
 $= 64 \times 2$
 $= 128$

Q2): Find the interest and the amount when:

a) $P = ₹ 1600$; $T = 2y$; $R = 6\% \text{ pa}$

Sol): $S.I = \frac{P \times R \times T}{100}$
 $= \frac{1600 \times 6 \times 2}{100}$
 $= 16 \times 12$
 $= 192$

$\therefore$ Amount = $S.I + P$
 $= 192 + 1600$
 $= 1792$

c): $P = ₹ 5000$; $T = 3y$; $R = 10\% \text{ pa}$

Sol): $S.I = \frac{P \times R \times T}{100}$
 $= \frac{5000 \times 10 \times 3}{100}$
 $= 50 \times 30$
 $= 1500.$

$\therefore$ Amount = $P + S.I$
 $= 5000 + 1500$
 $= ₹ 6500.$

Q4): Ramesh borrowed ₹ 2500 from his friend at 8% p.a. He returned the money after 1 year.

How much did he pay back altogether?

Sol): $P = ₹ 2500$
 $R = 8\%$
 $T = 1y.$

$\therefore S.I = \frac{P \times R \times T}{100}$

Q7): what principal will amount to ₹ 2640 in 2 years at 10% p.a interest?

Sol): Let Principal be x .
Amount = ₹ 2640.
Rate = 10%.
Time = 2 years.

Now, Amount = $P + S.I$
 $\Rightarrow S.I = \text{Amount} - P$

$$\Rightarrow S.I = \frac{2500 \times 8 \times 1}{100}$$

$$= 25 \times 8$$

$$= ₹ 200.$$

$$\therefore \text{Amount} = P + S.I$$

$$= ₹ 2500 + 200$$

$$= ₹ 2700.$$

Q8): In how many years will ₹ 900 amount to ₹ 1050 at 10% p.a?

Sol): $P = ₹ 900$
 $A = ₹ 1050.$
 $R = 10\%$
 $T = ?$

$$S.I = \text{Amount} - P.$$

$$= ₹ 1050 - 900$$

$$= ₹ 150$$

$$\text{Now } S.I = \frac{P \times R \times T}{100}$$

$$\Rightarrow T = \frac{S.I \times 100}{P \times R}$$

$$\Rightarrow T = \frac{150 \times 100}{900 \times 10}$$

$$\Rightarrow T = \frac{15}{9} = \frac{5}{3}$$

$$\Rightarrow T = \frac{5}{3} \text{ years.}$$

$$\Rightarrow T = \frac{5}{3} \times 12 \text{ months}$$

$$\Rightarrow T = 20 \text{ months}$$

$$\Rightarrow T = 1 \text{ year } 8 \text{ months.}$$

$$\Rightarrow S.I = 2640 - x.$$

$$\text{Now } S.I = \frac{P \times R \times T}{100}$$

$$\Rightarrow 2640 - x = \frac{x \times 10 \times 5}{100}$$

$$\Rightarrow 2640 - x = \frac{x}{5}$$

$$\Rightarrow 5(2640 - x) = x.$$

$$\Rightarrow 13200 - 5x = x$$

$$\Rightarrow 13200 = x + 5x$$

$$\Rightarrow 13200 = 6x.$$

$$\text{or } 6x = 13200$$

$$\Rightarrow x = \frac{13200}{6} = 2200$$

$$\Rightarrow x = 2200.$$

$$\therefore \text{Principal} = ₹ 2200.$$

Q13): In how many years will a sum of money double itself at 10% p.a interest?

Sol): let P be x
 then $A = 2x.$

$$R = 10\%$$

$$T = ?$$

$$A = P + S.I$$

$$\Rightarrow S.I = A - P$$

$$\Rightarrow S.I = 2x - x \Rightarrow x.$$

$$\text{Now, } S.I = \frac{P \times R \times T}{100}$$

$$\Rightarrow T = \frac{S.I \times 100}{P \times R}$$

$$\Rightarrow T = \frac{x \times 100}{x \times 10} \Rightarrow 10 \text{ years}$$

Q15): A sum of money becomes double of itself in 5 years at a certain rate of interest. find the rate of simple interest per annum?

Sol): let $P = x$

Then, $A = 2x$.

$T = 5 \text{ years}$

$R = ?$

$$\begin{aligned} \therefore \text{S.I} &= \text{Amount} - P \\ &= 2x - x \\ &= x. \end{aligned}$$

also. $\text{S.I} = \frac{P \times R \times T}{100}$

$$\Rightarrow R = \frac{\text{S.I} \times 100}{P \times T}$$

$$\Rightarrow R = \frac{x \times 100}{x \times 5} = 20$$

$$\Rightarrow R = 20\%$$

$\therefore$ Rate on interest is 20%.

NOTE $\Rightarrow$ Do remaining Questions by yourself and practice whole Term II thoroughly.

Good - Luck