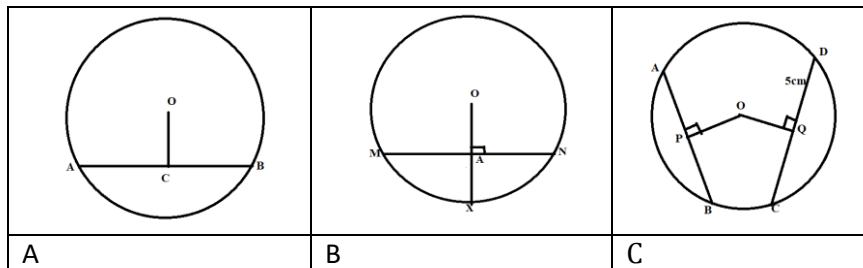


12. Answer the following questions:

1+2+1



- a) In the given (figure A), write the relation between AB and AC.
 b) In the given (figure B) O is the center of circle, If $OA \perp MN$ at a point A, $MN=24\text{cm}$ and $OA=5\text{cm}$, Find the length of AX.
 c) In the given (figure C) $DQ=5\text{cm}$, Find the measure of AB.

13. In the given table, answer the following questions: 1+2+2

Age in year	10	15	20	25	30	35	40	45
No. of students	6	10	12	15	8	9	6	2

- i) Find mode from the given data. ii) Find Q_3 from the given data.
 iii) Find mean from the given data.

14. A fair die is rolled 200 times. The result are recorded in the table given below: 1+1.5+1.5

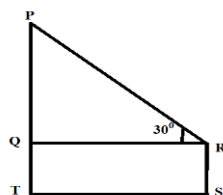
Number	1	2	3	4	5	6
Frequency	25	30	30	40	35	40

- i) appearing 6 ii) appearing odd numbers
 iii) appearing the numbers more than 4.

15. Answer the following questions: 1+2+1+2

- a) In the adjoining figure, PQR is a right angled triangle and QRST is a rectangle. If $PT=58\text{cm}$, $ST=20\text{cm}$ then,

- i) Find the measure of QR.
 ii) Find the measure of PQ.
 iii) Find the measure of RS.



b) Prove the following relations:

$$\frac{2 \tan 30^\circ}{1 + \tan^2 30^\circ} = \sin 60^\circ$$

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FREE BOARD EXAM 2079

2079/11/16

Subject: Maths

Class:9

F.M.:75

Time: 3Hrs

Attempt all these questions.

1. In a group of 800 people, 600 can speak Newari language and 260 people can speak magar language, Find 1+1.5+1.5

- i) Represent the information in Venn-diagram.
 ii) The number of people who can speak both Newari and Magar.
 iii) The number of people who can speak only Newari.

2. Answer the following questions: 2+2

- i) A publication provided 2% bonus to its 200 employees annually from the profit of Rs 5,00,00,000 equally. How much bonus would each employee receive?

- ii) A commission -based salesman has a basic salary is Rs 20,000 per month but he makes Rs 30,000 per month with the commission. If he commission was calculated on the total sales of Rs 5,00,000; find the commission rate.

3. After allowing 10% discount on the marked price of a television and adding 13% VAT, its price becomes Rs. 20,720. 2+1+1

- i) How much marked price of that Television?
 ii) How much discount amount of that Television
 iii) How much VAT amount of that Television.

4. Answer the following questions: 2+2

- i) The minimum charge of the telephone calls for 175 calls is Rs 200 and Re 1 is charged for each extra call. If the sub total amount is Rs 519, how many calls were made?

ii) The charge of electricity of 15A meter is RS 4 per unit for the first 20 units and Rs 6.50 per unit from 21 unit to 30 units. If the service charge is Rs 75, find the total charge of the consumption of 28 units of electricity.

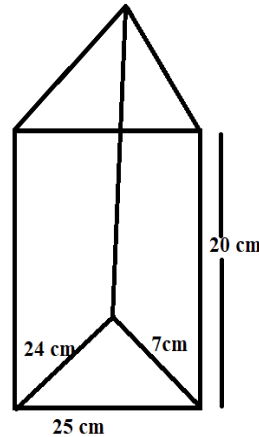
5. A room is 12m long, 8m broad and 6m high. If contains two doors of size 1.5m long and 4m high and three windows each of 2m long and 1.5m high. Find: $1+2+1+1$

- the area of four walls.
- the areas of doors and windows.
- the area of walls excluding the area of doors and windows.
- the cost of colouring the walls at the rate of Rs. 50 per sq. meter.

6. A triangular Prism have length 24 cm and measures of right angled triangular base sides are 24 cm, 25cm and 7 cm respectively then,

- Find the area of cross section.
- Find the area of lateral surface and total surface area.

$$1.5+3.5$$



7. In the given arithmetic sequence 4,9,14,19, 24,....., Find $1+2+2$

- Common difference
- general term
- next four terms

8. Solve the equations: $3+4$

i) From the following equations:

$$8x-3y=-6 \text{ and } 5x+6y=75$$

- Find the value of x. b) Find the value of y.
- Show that the values of x and y satisfies the given equations.

ii) 3 years later, a mother will be 4 times as old as her son. 3 years ago, the mother's age was two times as old as her son's age will be 8 years hence.

- Construct the linear equations.
- Find the present age of the mother.
- Find the present age of the son.

9. Answer the following Questions: $3+3$

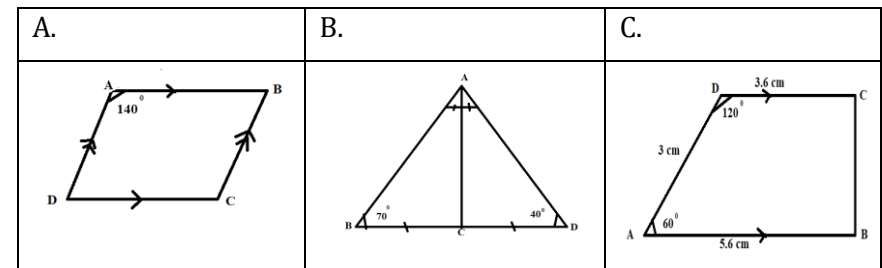
- Find LCM: $x^3 - 9x, x^4 - 2x^3 - 3x^2, x^3 - 27$
- If $a+b+c=0$, then prove that:

$$\frac{1}{1+x^a+x^{-b}} + \frac{1}{1+x^b+x^{-c}} + \frac{1}{1+x^c+x^{-a}} = 1$$

10. Solve the following: $3+3$

- "The perpendicular drawn through the center to a chord bisects the chord" Verify experimentally. (Two circles are necessary whose radii are at least 3cm.)
- "The diagonal of parallelogram bisects to each other." Prove theoretically.

11. On the basis of given figure answer the following questions: $1+1.5+2.5$



- In a parallelogram (figure A) ABCD, $\angle A = 140^\circ$. What is the value of $\angle B$?
- In the adjoining (figure B), AC bisects $\angle BAD$, find the value of $\angle CAD$.
- Construct a trapezium ABCD according to the given figure(C).