

Venanta

HOT MODEL QUESTION SET-2

COMPULSORY MATHEMATICS

Class: IX

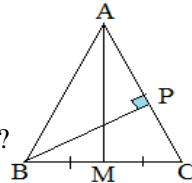
Time: 3:00 hours

Max. Marks: 100

Attempt all the questions:

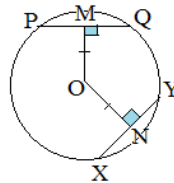
Group-A [3 × (1+1) = 6]

1. a) Define commission.
b) A room is x ft long, y ft broad and z ft high. Write the formula for finding the area of its four walls.



2. a) What is the value of $(9x)^0$, $x \neq 0$?
b) What do the line segments AM and AP denote in the figure?

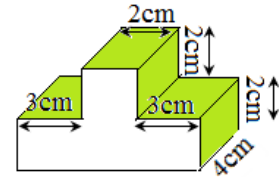
3. a) In the figure given alongside; O is the centre of circle. $OM \perp PQ$, $ON \perp XY$ and $OM = ON$. Write the relation between the chord PQ and XY.
b) What is the maximum value of lower 25% items or minimum value of upper 75% items called in any data?



Group-B [4 × (2 + 2) + 3 × (2 + 2 + 2) = 34]

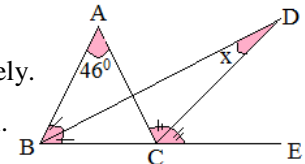
4. a) The catalogue price of a Samsung Galaxy-J2 is Rs. 11000. What will be its price after allowing 20% discount on it? Find.
b) According to the rate of electricity charge, the minimum charge up to 20 units is Rs. 3 per unit and the cost per unit from 21 units to 30 units is Rs. 7. Find the charge for the consumption of 28 units of electricity with Rs 50 service charge.

5. a) A rectangular room is 10 m long and 6 m broad. What would be the length of carpet 2.5 m wide required for carpeting its floor? Find it.
b) Find the volume of the T-shaped prism given alongside.
c) How many bricks each of $15\text{cm} \times 10\text{cm} \times 5\text{cm}$ are required to construct a wall of 20m long, 3m high and 20 cm wide? Find it.

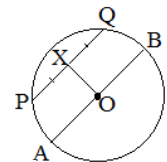


6. a) Factorize: $\frac{x^4}{y^4} + \frac{x^2}{y^2} + 1$
b) Evaluate: $\left(\frac{25}{16}\right)^{\frac{1}{2}} \left[\left(\frac{125}{64}\right)^{\frac{1}{3}} \div \left(\frac{16}{81}\right)^{\frac{1}{4}} \right]$
7. a) Simplify: $\frac{1}{1-x^{a-b}} + \frac{1}{1-x^{b-a}}$
b) Solve: $\frac{x^2+4}{5} = 8$
c) If $(5a + 2b) : (7a + 3b) = 9 : 13$, find the value of $a : b$.

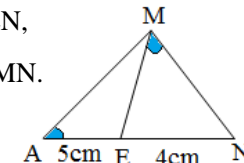
8. a) In the figure given alongside; BD and CD are the angular bisectors of $\angle ABC$ and $\angle ACE$ respectively. If $\angle BAC = 46^\circ$ and $\angle BDC = x$, find the value of x .



- b) In the given figure, O is the centre of a circle. If $PX = QX$, $PQ = 24$ cm and $AB = 26$ cm, find the length of OX.



- c) In the adjoining figure; $\triangle MAN \sim \triangle MEN$, $\angle MAN = \angle MNE$. Find the length of MN.

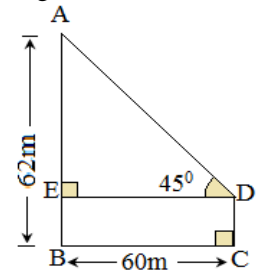


9. a) Find the value of $\sin^2 30^\circ - \cos^2 45^\circ + \tan^2 60^\circ$
 b) In a data, if $\sum fx = 370 + 20p$, $N = 23 + p$ and $\bar{x} = 17$, find the value of p .
10. a) What do you mean by sample space probability? Write the probabilities of sure and impossible events.
 b) Find the probability of getting a king when a card is drawn from a well shuffled deck of 52 playing cards.

Group-C (10 × 4 = 40)

11. In class IX Jamboree of a school, students performed their various talent shows. Out of 80 parents participating in the Jamboree; 34 preferred dance but not comedy shows, 23 preferred comedy but not dance shows and 13 parents preferred the shows other than these.
 (i) How many parents preferred both the shows?
 (ii) Show the above information in a Venn-diagram.
12. A man bought two school-bags for Rs. 2,020. He sold one of them at 20% profit and the other at 20% loss. Find his gain or loss percent in this transaction if the selling prices of both bags are the same.
13. A rectangular garden of length 40m and width 30 m is surrounded by a path of uniform width of 2m. Find the cost of gravelling the path at the rate Rs. 25 square meter.
14. Solve: $\frac{15}{x} - \frac{8}{y} = 1, \frac{9}{x} + \frac{4}{y} = 5$
15. If $x : y :: y : z$, prove that: $x^2 y^2 z^2 \left(\frac{1}{x^3} + \frac{1}{y^3} + \frac{1}{z^3} \right) = x^3 + y^3 + z^3$
16. Prove that the perpendicular drawn from the centre of a circle to a chord bisects the chord.
17. Explore experimentally the relation between the sum of any two sides and the third side of a triangle. (Two figures of different measurements are necessary)

18. Construct a parallelogram ABCD in which AB = 5cm, diagonal AC = 6cm and diagonal BD = 8cm.

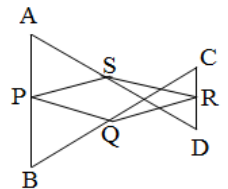


19. In the given figure, AED is a right angled triangle and BCDE is a rectangle. Find the length of CD.
20. Calculate Q_1 and Q_3 from the data given below.

Height (in cm)	20	120	60	40	80	100
No. of plants	16	10	25	9	20	19

Group-D (4 × 5 = 20)

21. When a commercial bank increased its profit from 25% to 35%, the annual amount of profit increased to Rs. 13,30,000. If the company decided to distribute 60% of bonus equally to its 40 employees from the increased amount of profit, how much bonus will each employee receive? Find it.
22. The length of a room is twice its breadth and thrice its height. If the cost of carpeting the floor at the rate of Rs.60 per sq. meter is Rs. 6750, find the cost of plastering its wall and ceiling at Rs. 50 per sq. meter.
23. If $x^2 + 2 = 3^{\frac{2}{3}} + 3^{-\frac{2}{3}}$, prove that: $3x(x + 3) = 8$.
24. In the adjoining figure; P, Q, R and S are the mid-points of AB, BC, CD and AD respectively. Prove that: PQRS is a parallelogram.



THE END