MAHARASHTRA BOARD · CLASS 10 · MATHS PART 2 GEOMETRY

Maharashtra Board Class 10 Maths Part 2 Geometry Guess Paper 2027

Time: 2 hours · Maximum marks: 40 · 20 questions

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Section 1
Q1(A) MCQs (choose the correct alternative) and Q1(B) short one-mark subquestions

Q1. Angle made by the line with the positive direction of X-axis is 30 degrees. Find slope of the line. — 1 mark

Q2. If the side of the cube is 5 cm, then the volume of that cube is ..... (A) 10 cm3 (B) 100 cm3 (C) 125 cm3 (D) 25 cm3 — 1 mark

Q3. Out of the following which is a Pythagorean triplet? (a) (1, 5, 10) (b) (5, 12, 13) (c) (2, 3, 4) (d) (5, 5, 2) — 1 mark

Q4. Two circles having radii 4 cm and 5 cm touch each other internally. Then the distance between the centres is ..... (A) 4 cm (B) 5 cm (C) 1 cm (D) 9 cm — 1 mark

Q5. The ratio of corresponding sides of similar triangles is 3 : 5, then find the ratio of their areas. — 1 mark

Q6. Radius of a sector of a circle is 35 cm and length of its arc is 22 cm. What is the area of the sector? (a) 285 cm2 (b) 185 cm2 (c) 385 cm2 (d) 85 cm2 — 1 mark

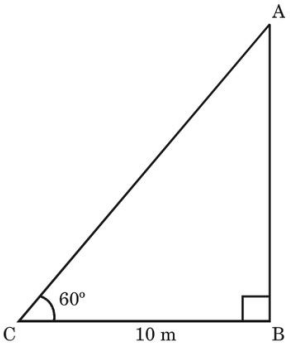
Q7. Find the slope of the line passing through the points A(2, 3) and B(4, 7). — 1 mark

Q8. Find the diagonal of a square whose side is 5 cm. — 1 mark

Section 2
Q2(A) complete-the-activity (any two of three) and Q2(B) two-mark subquestions (any four of five)

Q9. Find the co-ordinates of the midpoint of the line segment joining points P(0, 6) and Q(12, 20). — 2 marks

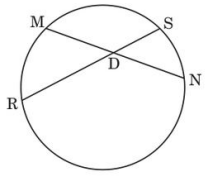
Q10. An observer at a distance of 10 m from a tree looks at the top of the tree, the angle of elevation is 60 degrees. To find the height of the tree complete the activity. (root 3 = 1.73) Activity: AB = h = height of tree, BC = 10 m; angle of elevation = angle BCA = 60 degrees; tan theta = AB/BC; tan 60 = AB/BC = root 3; AB = BC x root 3 = 10 root 3 = 10 x 1.73. 2 marks



Activity :

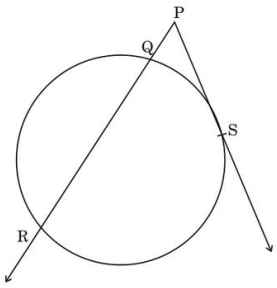
Q11. Find surface area of a sphere of radius 7 cm. 2 marks

Q12. In the given figure, chord MN and chord RS intersect at point D. If RD = 15, DS = 4, MD = 8, find DN. 2 marks



Q13. If sin theta = 20/29, then complete the activity to find cos theta. Activity: $\sin^2$ theta + $\cos^2$ theta = 1; $\cos^2$ theta = 1 - $\sin^2$ theta; $\cos^2$ theta = 1 - 400/841; $\cos^2$ theta = 441/841; taking square roots, cos theta = 21/29. 2 marks

Q14. In the given figure, seg PS is a tangent segment, line PR is a secant. If PQ = 3.6, QR = 6.4, find PS. Activity: PS^2 = PQ x PR (Tangent secant segment theorem) = PQ x [PQ + QR] = 3.6 x [3.6 + 6.4] = 3.6 x 10; PS^2 = 36; PS = 6. 2 marks



Section 3

Q3(A) three-mark activity (any one of two) and Q3(B) three-mark subquestions (any two of four)

Q15. triangle ABC ~ triangle LMN. In triangle ABC, AB = 5.5 cm, BC = 6 cm, CA = 4.5 cm. Construct triangle ABC and triangle LMN such that BC/MN = 5/4. 3 marks

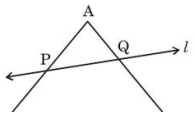
Q16. Draw a circle with centre O and radius 3.5 cm, take a point P at a distance 5.7 cm from the centre. Draw tangents to the circle from point P. 3 marks

Q17. Find the co-ordinates of point P, if P divides the line segment joining the points A(-1, 7) and B(4, -3) in the ratio 2 : 3. 3 marks

Section 4
Q4 four-mark problems (any two of three)

Q18. In the given figure, line l intersects side AB and side AC of triangle ABC in points P and Q respectively. Show that A(triangle APQ)/A(triangle ABC) = (AP x AQ)/(AB x AC). 4 marks

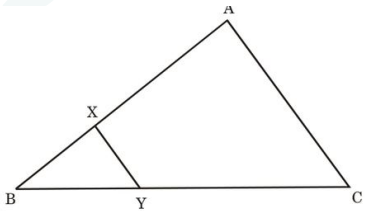
P and Q respectively. Show that $\frac{\text{A}(\Delta APQ)}{\text{A}(\Delta ABC)} = \frac{AP \times AQ}{AB \times AC}$.



Q19. In triangle ABC, A-X-B and A-Y-C is such that segment XY parallel side BC. Segment XY divides triangle ABC in two equal areas, then find BX/AB. 4 marks

Section 5
Q5 three-mark challenge problem (any one of two)

Q20. In the given figure, seg XY parallel side AC. If 2AX = 3BX and XY = 9, complete the activity to find the value of AC. Activity: 2AX = 3BX; AX/BX = 3/2; (AX + BX)/BX = (3 + 2)/2; AB/BX = 5/2; triangle BCA ~ triangle BYX (AA test of similarity); BA/BX = AC/XY (corresponding sides); 5/2 = AC/9; AC = 22.5. 3 marks



Activity :

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