

**ICSE Board
Class VIII
Mathematics**

Time: 2 hrs 30 min

Sample Paper – 1

Total Marks: 80

General Instructions:

1. Answers to this paper must be written on the paper provided separately.
 2. You will not be allowed to write during the first 15 minutes.
 3. This time is to be spent in reading the question paper.
 4. The time given at the head of this paper is the time allowed for writing the answers.
 5. Attempt all questions from Section A. Solve any four questions from Section B.
 6. All working, including rough work, must be clearly shown and must be done on the same sheet as the rest of the answer.
 7. Omission of essential working will result in loss of marks.
 8. The intended marks for questions or parts of questions are given in brackets [].
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Section A (40 marks)

Question 1

- (a) Expand the following: [3]
- i. $(a + 2b - 3c)^2$
 - ii. $(4 - \sqrt{5}x)^2$
- (b) Find the cube root of 74088. [3]
- (c) Let $A = \{\text{factors of } 24\}$ and $B = \{\text{factors of } 30\}$, find [4]
- i. $A \cup B$
 - ii. $A \cap B$
 - iii. $A - B$
- Also verify that, $n(A - B) = n(A) - n(A \cap B) = n(A \cup B) - n(B)$

Question 2

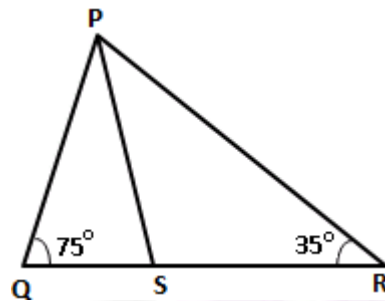
- (a) Solve: $(81)^{-1} \times 3^{-5} \times 3^9 \times (64)^{\frac{5}{6}} \times (\sqrt[3]{3})^6$ [3]
- (b) If two adjacent sides of a rectangle are $(5x^2 + 25xy + 4y^2)$ and $(2x^2 - 2xy + 3y^2)$, find its area. [3]
- (c) A two digit number is three times the sum of its digits. If 45 is added to the number; its digits are reversed. Find the number. [4]

Question 3

- (a) Find the square root of 761.9, corrected up to two places of decimal. [3]
- (b) A wire is in the form of a square with each side measuring 27.5 cm. It is straightened and bent into the shape of a circle. Find the area of the circle. [3]
- (c) Sumit took a loan of Rs. 16000 from Bank of Baroda for 3 years at the rate of 12.5% p.a. compounded annually. Find the amount and the compound interest he has to pay at the end of 3 years to clear his debt to the nearest rupee. [4]

Question 4

- (a) A hot water tap and a cold water tap fill a bath tub in 12 minutes and 15 minutes respectively. An outlet pipe empties it in 10 minutes. If all three are kept open simultaneously, in how much time will the bath tub be full? [3]
- (b) In the adjoining diagram, PS bisects $\angle P$. Arrange PQ, QS and SR in ascending order. [3]

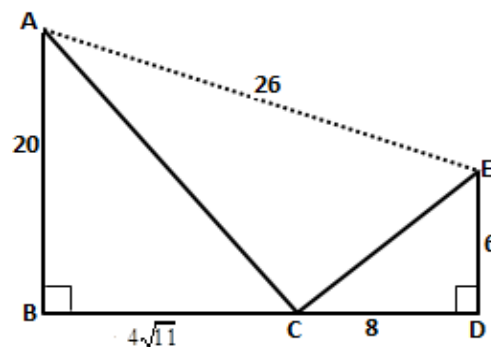


- (c) Construct ΔABC in which $BC = 6$ cm, $m\angle B = 120^\circ$ and $AB = 4.5$ cm. Draw its circumcircle. [4]

Section B (40 Marks)

Question 5

- (a) Factorise the polynomial $x^4 + 5x^2 - 6$. [3]
- (b) Solve to find values of a and b: [3]
- $$2(a - 3) + 3(b - 5) = 0$$
- $$5(a - 1) + 4(b - 4) = 0$$
- (c) In the adjoining figure, all measurements are in centimeters. [4]
- Find (i) AC (ii) CE
- Hence prove that $AE^2 = AC^2 + CE^2$. Also state the measure of $\angle ACE$.



Question 6

- (a) Simplify: $\frac{\sqrt{15}-2}{\sqrt{15}+2} + \frac{\sqrt{15}+2}{\sqrt{15}-2}$ [3]
- (b) Find the area of a triangle whose sides are 28 cm, 21 cm and 35 cm. [3]
- (c) Draw a histogram for the following data: [4]

Class Interval	Frequency
0 - 5	4
5 - 10	10
10 - 15	18
15 - 20	8
20 - 25	6

Question 7

- (a) If $2a - \frac{1}{2a} = 3$, find the value of $8a^3 - \frac{1}{8a^3}$. [3]
- (b) The following table shows the market position of different brands of tea-leaves: [3]

Brand	A	B	C	D	others
% Buyers	35	20	20	15	10

Draw a pie-chart to represent the above information.

- (c) Draw the graphs of the equations $2x - y = 3$ and $3x + 2y = 1$ on the same co-ordinate axes. Also, find the point of intersection of the two lines from the graphs. [4]

Question 8

- (a) Simplify: $\frac{2x}{x^2-4} + \frac{1}{x^2+3x+2}$ [3]
- (b) The dimensions of a cube are doubled. Will there be an increase or decrease in its volume and surface area? If yes, by how many times will its volume and surface area change? [3]
- (c) A dealer puts up a sale in his shoe shop. He marks his goods 40% above the cost price and allows a discount of 15%. Find his profit percentage. [4]

Question 9

- (a) Prove that a median divides a triangle into two triangles of equal area. [3]
- (b) The dimensions of a cuboidal tin box are 30 cm x 40 cm x 50 cm. Find the cost of the tin required for making 20 such tin boxes if the cost of tin sheet is Rs. 25 per square metre. [3]
- (c) ABCD is a rhombus having each side measuring 13 cm and one of its diagonal AC of length 24 cm. Find the area of the rhombus. [4]

