

Mathematics (Science Group)	Ninth Gujranwala Board 2019	Paper - I
Time: 2.10 hrs	Subjective (Group - I)	Marks : 60

Note: Section I is compulsory. Attempt three (3) questions from Section II. Question No. 9 is compulsory.

### SECTION-I

2. Write short answers to any SIX (6) questions: (2×6=12)

- Define square matrix.
- Find the transpose of the matrix  $E = \begin{bmatrix} 2 & 3 \\ -4 & 5 \end{bmatrix}$
- Simplify:  $\sqrt[5]{\frac{3}{32}}$
- Write real and imaginary parts of the number  $-2 - 2i$ .
- Express 0.0074 in scientific notation.

vi Find the value of x when  $\log_{64} 8 = \frac{x}{2}$

vii Evaluate:  $\frac{3x^2\sqrt{y} + 6}{5(x+y)}$  if  $x = -4, y = 9$

viii Rationalize the denominator  $\frac{\sqrt{3}}{\sqrt{3}-1}$

ix Factorize:  $5x^2 - 16x - 21$

3. Write short answers to any SIX (6) questions: (2×6=12)

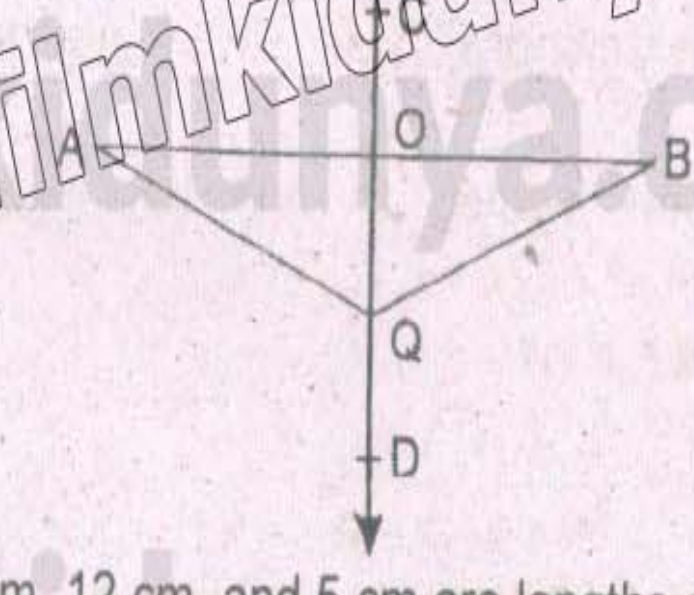
- Define L.C.M.
- Solve the equation  $\sqrt[3]{3x+5} = \sqrt[3]{x-1}$
- Solve:  $|3x - 5| = 4$
- Find the value of m and c of  $2x + 3y - 1 = 0$  by expressing it in the form of  $y = mx + c$ .
- Define cartesian plane.
- Find the distance between the points A(9, 2), B(7, 2).
- Define scalene triangle.
- State S.A.S. postulate.
- One angle of a parallelogram is  $130^\circ$ . Find the measures of its remaining angles.

4. Write short answers to any SIX (6) questions: (2×6=12)

i If CD is right bisector of line segment  $\overline{AB}$ , then

$$m\overline{OA} = \underline{\hspace{2cm}}$$

$$m\overline{AQ} = \underline{\hspace{2cm}}$$



ii If 13 cm, 12 cm, and 5 cm are lengths of a triangle then verify that difference of measures of any two sides of a triangle is less than the measure of third side.

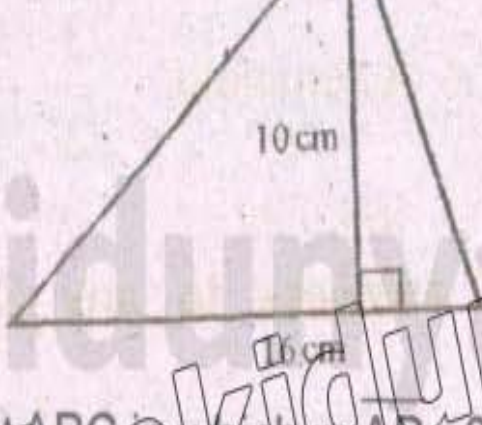
iii Define a proportion.

iv What is meant by Pythagorus theorem.

v Verify that triangle having measure of a sides is right angled triangle:  $a = 9\text{cm}, b = 12\text{cm}, c = 15\text{cm}$

vi Define interior of a triangle.

vii Find the area of a given figure.



viii Construct a  $\triangle ABC$  in which  $m\overline{AB} = 3.2\text{cm}, m\overline{BC} = 4.2\text{cm}, m\overline{CA} = 5.2\text{cm}$

ix Define incentre of the triangle.

### SECTION - II

(Every question carries 8 marks and every part carries 4 marks.)

5.(a) Solve the system of linear equations by Cramer's rule: 4

$$3x - 2y = -6$$

$$5x - 2y = -10$$

(b) Simplify:  $\sqrt{\frac{(216)^{\frac{2}{3}} \times (25)^{\frac{1}{2}}}{(0.04)^{\frac{-3}{2}}}}$  4

6.(a) Use log table to find the value of  $\frac{0.678 \times 9.01}{0.0234}$  4

(b) If  $x + y + z = 12$  and  $x^2 + y^2 + z^2 = 64$ , then find the value of  $xy + yz + zx$ . 4

7.(a) If  $(x - 1)$  is a factor of  $x^3 - kx^2 + 11x - 6$ , then find the value of k. 4

(b) Use division method to find the square root of  $4x^4 + 12x^3 + x^2 - 12x + 4$  4

8.(a) Solve the equation:  $\frac{2}{x^2-1} - \frac{1}{x+1} = \frac{1}{x-1}$  4

(b) Construct the  $\triangle PQR$ . Also draw its altitudes: 4

$m\overline{PQ} = 6\text{cm}, m\overline{QR} = 4.5\text{cm}, m\overline{PR} = 5.5\text{cm}$

9. Prove that any point on the right bisector of a line segment is equidistant from its end points.

OR

Prove that the triangles on the same base and of the same (i.e. equal) altitudes are equal in area.