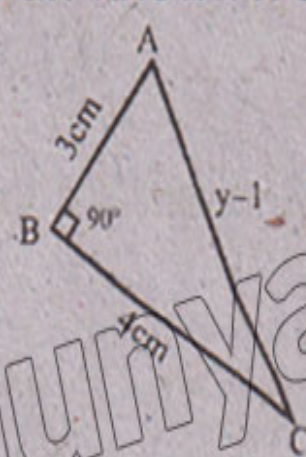
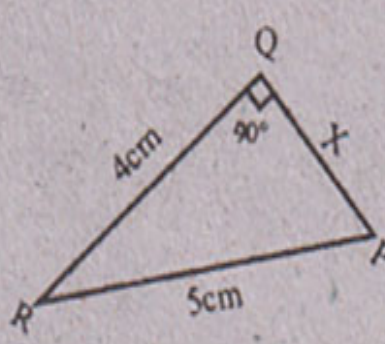


SECTION-I

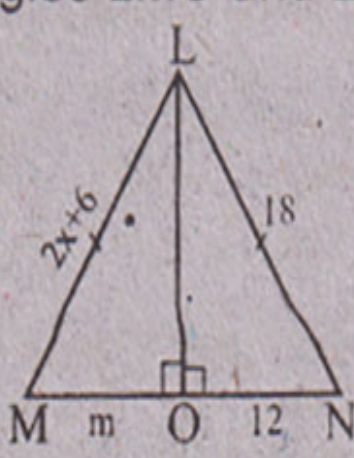
2. Write short answers to any SIX (6) questions. (12)
- Define singular matrix and give example.
 - Find product $\begin{bmatrix} 1 & 2 \\ 5 & -4 \end{bmatrix}$
 - Simplify $(x^3)^2 \div x^{3^2}$
 - Simplify $(2-3i)(3-2i)$ and write answer in $a+ib$ form.
 - Calculate $\log_5^3 \times \log_3 25$
 - Find the value of a if $\log_5^3 = 0.5$
 - Define rational expression.
 - Simplify $\sqrt[5]{243x^5y^{10}z^{15}}$
 - Use the remainder theorem to find the remainder when $3x^3 - 10x^2 + 13x - 6$ is divided by $(x-2)$

3. Write short answers to any SIX (6) questions. (12)
- Find HCF of $102xy^2z$, $85x^2yz$, $187xyz^2$.

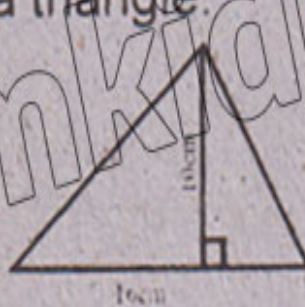
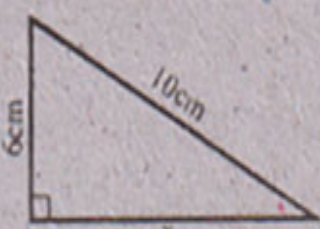
- Solve the equation $2\sqrt{t+4} = 5$
- Solve the inequality $\frac{1}{2}x - \frac{2}{3} \leq x + \frac{1}{3}$
- Whether $(2, 5)$ lies on the line $2x - y + 1 = 0$ or not.
- Define cartesian plane.
- Find the distance between the pair of points $A(2, -6)$, $B(3, -6)$.
- Find the mid-point of the line segment joining the pair of points $A(-4, 9)$ and $B(-4, -3)$.
- Define congruent triangles.
- If $\Delta PQR \cong \Delta ABC$, then find the un-known x and y .



4. Write short answers to any SIX (6) questions. (12)
- In congruent triangles LMO and LNO find 'x' and 'm'.



- 3cm, 4cm and 7cm are not the lengths of a triangle. Give reason.
- Define similar triangles.
- Find the value of 'x'.
- Verify that $a = 9\text{cm}$, $b = 12\text{cm}$ and $c = 15\text{cm}$ are sides of a right triangle.
- Define interior of a triangle.
- Find the area:



- Define circumcentre of the triangle.
- Construct a ΔXYZ in which $m\overline{YZ} = 7.6\text{cm}$, $m\overline{XY} = 6.1\text{cm}$, $\angle X = 90^\circ$.

SECTION-II

Note: Attempt any three questions. (24)

- (a) Solve system of linear equations by Cramer's rule:

$$\begin{aligned} 2x + y &= 3 \\ 6x + 5y &= 1 \end{aligned}$$
 (4)
 - (b) Simplify $\frac{(243)^{\frac{2}{3}} \cdot (32)^{\frac{1}{5}}}{\sqrt{(196)^{-1}}}$ (4)
 - (a) Use logarithm to find value of $\frac{(8.97)^3 \cdot (3.95)^2}{\sqrt[3]{15.37}}$ (4)
 - (b) If $x = 2 + \sqrt{3}$, then find value of $x - \frac{1}{x}$ and $\left(x - \frac{1}{x}\right)^2$ (4)
 - (a) Factorize cubic polynomial by factor theorem: $x^3 - x^2 - 10x + 8$. (4)
 - (b) Use division method to find the square root of: $9x^4 - 6x^3 + 7x^2 - 2x + 1$. (4)
 - (a) Solve the equation and check for extraneous solution, if any $\sqrt[3]{2-t} = \sqrt[3]{2t-28}$ (4)
 - (b) Construct the triangle ABC and draw the bisectors of its angles: $m\overline{AB} = 4.6\text{cm}$, $m\overline{BC} = 5\text{cm}$, $m\overline{CA} = 5.1\text{cm}$. (4)
 - Prove that any point on the right bisector of a line segment is equidistant from its end points. (4)
- OR Prove that parallelograms on the same base and between the same parallel lines (or of the same altitude) are equal in area. (4)