

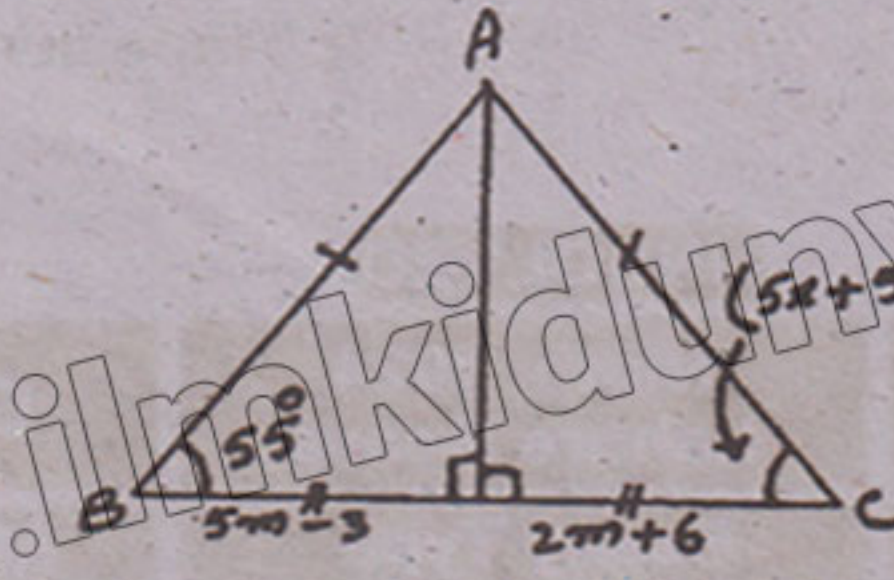
PART - I

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

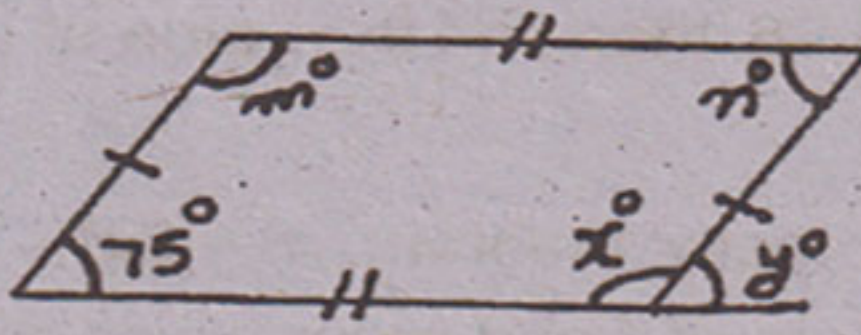
- i If $A = \begin{bmatrix} -1 & 2 \\ 0 & 1 \end{bmatrix}$ and $B = \begin{bmatrix} 2 & 1 \\ -1 & 2 \end{bmatrix}$ then find $A - B$.
- ii Simplify and write answer in $a + bi$ form: $\frac{-2}{1+i}$
- iii Simplify: $(x^3)^2 \div x^{3^2}$
- iv Find the value of 'a' if: $\log_a 6 = 0.5$
- v Solve: i^7
- vi Reduce the rational expression to the lowest form
 $\frac{8a(x+1)}{2(x^2-1)}$
- vii Simplify: $\sqrt[5]{243x^5y^{10}z^{15}}$
- viii Factorize: $5x^3 - 20x$
- ix Factorize: $1 - 125x^3$

Q.3 Write short answers to any SIX (6) questions: 12

- i Find L.C.M. : $102xy^2z, 85x^2yz, 187xyz^2$
- ii Define non-strict inequality.
- iii Solve for x : $|3x - 5| = 4$
- iv Find the value of m and c of the given line $4x - 2y = 2b$ expressing in the form $y = mx + c$
- v Draw the graph of : $2x - y = 2$
- vi Define isosceles triangle.
- vii Find the distance between A and B : $A(3,-5), B(2,-4)$
- viii Find the value of unknowns for the given congruent triangles:

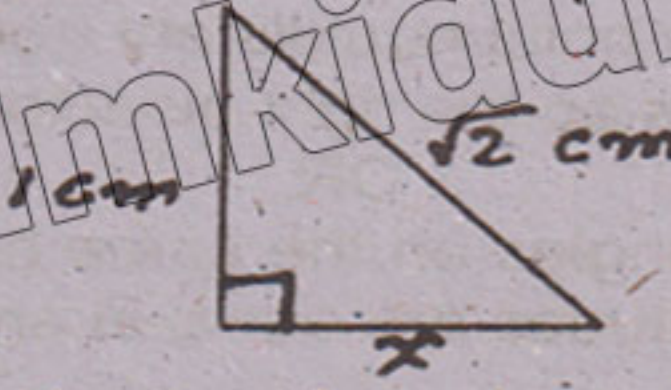


ix Find the unknowns in the given figure :

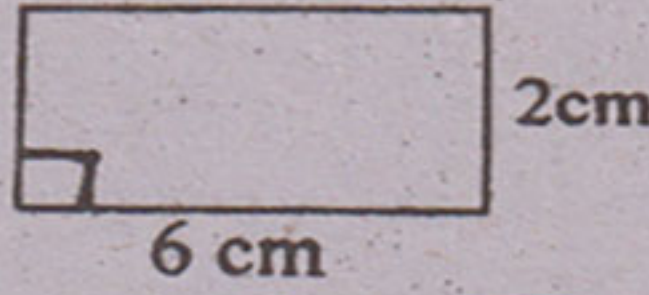


Q.4 Write short answers to any SIX (6) questions: 12

- i What is meant by the right bisector of a line segment?
- ii If 3 cm and 4 cm are lengths of two sides of a right angle triangle, then what should be the third length of the triangle?
- iii Define ratio.
- iv State Pythagoras theorem.
- v Find the value of x:



- vi What is meant by the triangular region?
- vii Find the area of given figure:



- viii Construct ΔXYZ in which $m\overline{YZ} = 7.6\text{cm}$, $m\overline{XY} = 6.1\text{cm}$, $m\angle X = 90^\circ$
- ix What is meant by the median of a triangle?

PART - II

Note: Attempt THREE questions in all. But question No. 9 is Compulsory.

Q.5(a) Solve by matrix inversion method: 4

$$\begin{aligned} -4x - y &= -9 \\ 3x + y &= 5 \end{aligned}$$

(b) Simplify: $\left(\frac{a^p}{a^q}\right)^{p+q} \cdot \left(\frac{a^q}{a^r}\right)^{q+r} \div 5(a^p \cdot a^r)^{p-r}$, $a \neq 0$ 4

Q.6(a) Use log table to solve: $\frac{(438)^3 \sqrt{0.056}}{(388)^4}$

(b) If $\left(5x - \frac{1}{5x}\right) = 6$ then find the value of $\left(125x^3 - \frac{1}{125x^3}\right)$ 4

Q.7(a) Factorize by factor theorem: $x^3 - 2x^2 - x + 2$ 4

(b) Find the values of ℓ and m for which the expression will become perfect square: 4
 $x^4 + 4x^3 + 16x^2 + \ell x + m$

Q.8(a) Solve the equation: $\frac{2}{3x+6} = \frac{1}{6} - \frac{1}{2x+4}$, $x \neq -2$ 4

(b) Construct ΔABC , in which : $m\overline{BC} = 4.2\text{cm}$, $m\overline{CA} = 3.5\text{cm}$, $m\angle C = 75^\circ$ 4

Q.9 Prove that any point equidistant from the end points of a line segment is on the right bisector of it. 4

OR

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