

PART - I**Q.2** Write short answers to any SIX (6) questions: 12

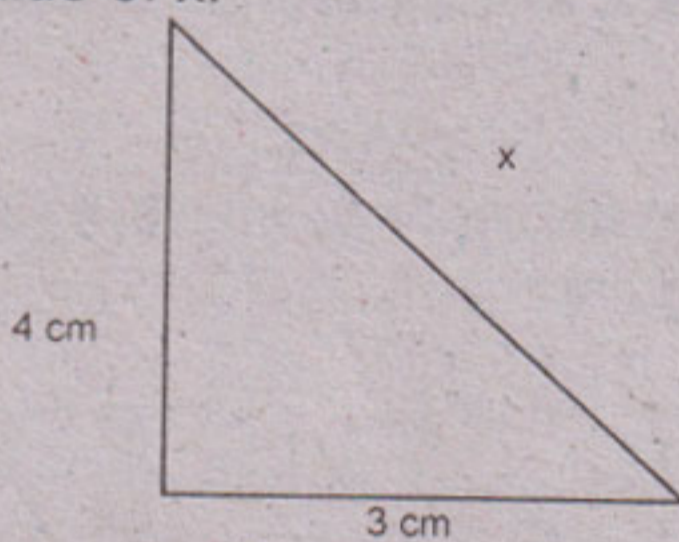
- i Define singular matrix.
- ii If $A = \begin{bmatrix} 3 & 0 \\ -1 & 2 \end{bmatrix}$ and $B = \begin{bmatrix} 6 \\ 5 \end{bmatrix}$ then find AB.
- iii Simplify: $\sqrt[3]{-\frac{8}{27}}$
- iv Simplify and write answer in $a + bi$ form: $\frac{-2}{1+i}$
- v Find the value of x : $\log_3 x = 4$
- vi Find the value of x : $\log x = 0.1821$
- vii Reduce to the lowest form: $\frac{8a(x+1)}{2(x^2-1)}$
- viii Simplify: $\frac{4}{5} \sqrt[3]{125}$
- ix Factorize: $x^2 - 11x - 42$

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

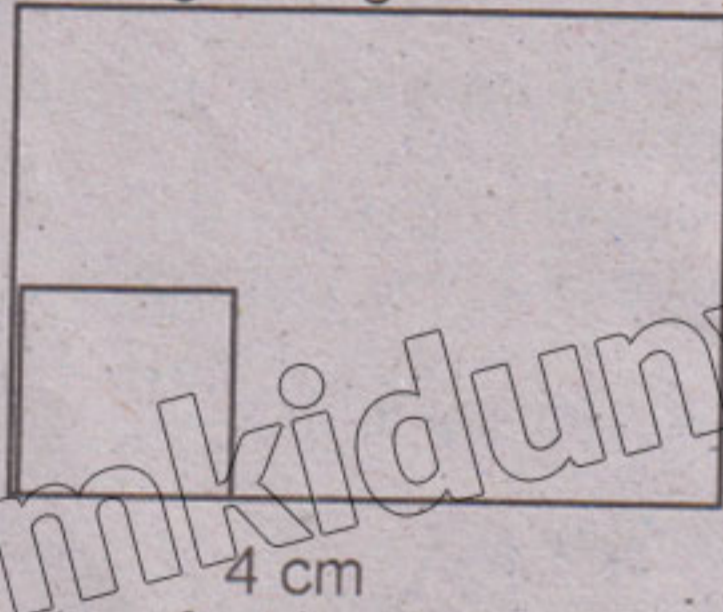
- i Find the L.C.M. : $39x^7y^3z, 91x^5y^6z^7$
- ii Define linear inequality and write the standard form.
- iii Solve: $-\frac{1}{3}x + 5 \leq 1$
- iv Draw the point (4, -5) on the graph paper.
- v Define cartesian plane.
- vi Find the distance between the points:
A(3, -11), B(3, -4)
- vii Define equilateral triangle.
- viii What is meant by S.S.S \cong S.S.S?
- ix Define parallelogram.

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

- i Define the bisector of line segment.
- ii 3 cm, 4 cm and 7 cm are not the lengths of the triangle. Give the reason.
- iii Define ratio.
- iv Define Pythagoras theorem.
- v Find the value of x :



- vi Define altitude of a triangle.
- vii Find the area of given figure:



- viii Define incentre of a triangle.
- ix Construct a $\triangle XYZ$ in which $m\overline{XY} = 5.5$ cm, $m\overline{ZX} = 4.5$ cm, $m\angle Z = 90^\circ$

PART-II**Note:** Attempt any THREE questions in all.

But question No. 9 is Compulsory.

Q.5(a) Use the matrix inversion method to solve liner equations:

$$4x + 2y = 8$$

$$3x - y = -1$$

(b) Simplify: $\frac{(81)^n \times 3^5 - (3)^{4n-1} (243)}{(9^{2n})(3^3)}$ **Q.6(a)** Use log tables to find the value of : 0.8176×13.64 **(b)** If $x^2 + y^2 + z^2 = 78$ and $xy + yz + zx = 59$, then find the value of $x + y + z$.**Q.7(a)** Factorize by factor theorem: $x^3 - 2x^2 + x + 2$ **(b)** Find the square root by division method:

$$x^4 - 10x^3 + 37x^2 - 60x + 36$$

Q.8(a) Solve: $\left| \frac{x+5}{2-x} \right| = 6$ **(b)** Construct triangle ABC, draw the perpendicular bisectors of its sides:

$$m\overline{AB} = 5.3 \text{ cm}, m\angle A = 45^\circ, m\angle B = 30^\circ$$

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

OR

Prove that the parallelograms on the same base and between the same parallel lines (or of the same altitude) are equal in area.