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Total No. of Questions : **13**]

[Total No. of Printed Pages : **8**

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1303–X

MATHEMATICS

(Term–1st)

Time : **3** Hours] [Maximum Marks : **60**

Note :— (i) All questions are compulsory.

(ii) Diagrams, wherever necessary should be neat and accurate.

1. Locate $\sqrt{2}$ on the number line. 8

Or

Express (i) $0.\overline{001}$, (ii) $0.4\overline{7}$ and (iii) $0.\overline{6}$ in the form $\frac{p}{q}$, where p and q are integers and $q \neq 0$.

2. Without actually calculating the cubes, find the value of $(28)^3 + (-15)^3 + (-13)^3$. 8

Or

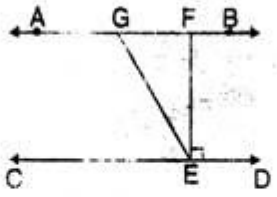
Find the remainder obtained on dividing :

$p(x) = x^3 + 1$ by $x + 1$ (Using Long Div. method)

3. If two lines intersect each other, then the vertically opposite angles are equal. Prove it.

Or

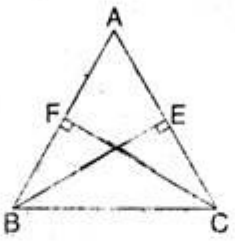
In the given figure, if AB || CD, EF ⊥ CD and ∠ GED = 126°, find the ∠ AGE, ∠ GEF and ∠ FGE. 5



4. Show that in a right angled triangle, the hypotenuse is the longest side. 5

Or

ABC is an isosceles triangle in which altitudes BE and CF are drawn to equal sides AC and AB respectively. Show that these altitudes are equal.



5. Construct a triangle ABC in which BC = 8 cm, $\angle$ B = 45° and AB – AC = 3·5 cm. 5

Or

Construct a triangle XYZ in which $\angle$ Y = 30°, $\angle$ Z = 90° and XY + YZ + ZX = 11 cm.

6. In which quadrant or on which axis do each of the points (– 2, 4), (3, – 1), (– 1, 0), (1, 2) and (– 3, – 5) lie ? Verify your answer by locating them on the Cartesian plane. 5

Or

See the figure given below and write the following :

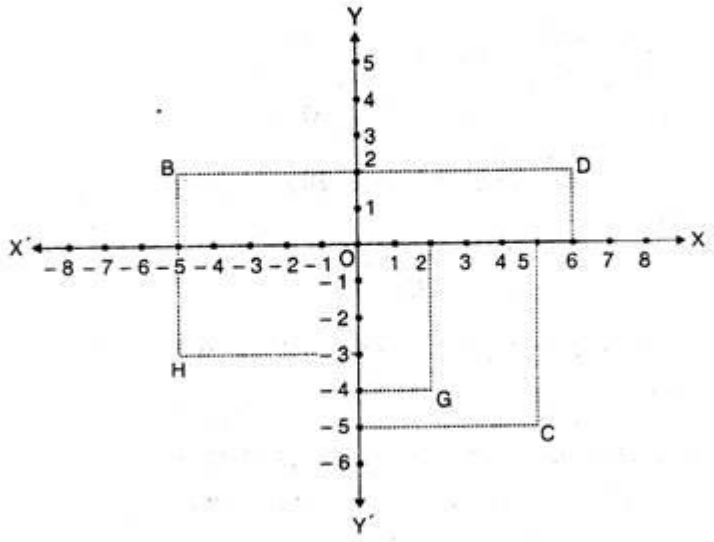
(i) The coordinate of 'B'

(ii) The abscissa of the point 'D'

(iii) The ordinate of the point 'H'

(iv) The point identified by the coordinates (2, – 4)

(v) The coordinate of point 'C'.



7. Simplify : 3

$$\left(\frac{1}{3^3}\right)^7.$$

8. Factorise the following : 3

$$x^2 - \frac{y^2}{100}.$$

9. Draw the graph of the following linear equation in two variables : 3

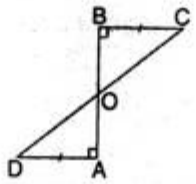
$$x - y = 2.$$

10. Express the following linear equation in the form $ax + by + c = 0$ and indicate the values of a, b and c in : 3

(i) $x = 3y$

(ii) $x - \frac{y}{5} - 10 = 0.$

11. AD and BC are equal perpendiculars to line segment AB as shown in the figure. Show that CD bisects AB. 3



12. Prove that the sides opposite to equal angles of a triangle are equal. 3

13. In each of the following questions, choose the correct/most appropriate answer and write it in your answer-book : 1×6

(i) On simplifying $(3+\sqrt{3})(3-\sqrt{3})$ becomes :

(a) 3

(b) 9

(c) 6

(d) 0

(ii) The value of the polynomial $5x - 4x^2 + 3$ at $x = -1$ is :

(a) -6

(b) -3

(c) -7

(d) -4

(iii) The two angles of a triangle are 41° and 37°, the third angle is :

(a) 78°

(b) 102°

(c) 107°

(d) 101°

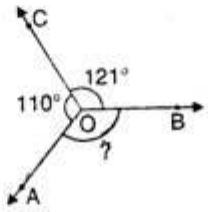
(iv) In the given figure $\angle$ AOB is equal to :

(a) 231°

(b) 128°

(c) 129°

(d) 127°



(v) Regarding sides a triangle has :

(a) 6 kinds

(b) 5 kinds

(c) 4 kinds

(d) 3 kinds

(vi) A Δ PQR, with sides PQ = 4·4 cm, QR = 5·3 cm and RP = 2·8 cm

has perimeter equal to :

(a) 9·7 cm

(b) 8·1 cm

(c) 7·2 cm.

(d) 12·5 cm