

12. Show that $0.47777777\dots$ can be expressed in the form of $\frac{p}{q}$, where p and q are integers and $q \neq 0$.

13. Write the coordinates of the following points:

- (i) lying on x-axis and with x-coordinate 4
- (ii) lying on y-axis with y-coordinate -3 .

SECTION – C(3 marks each)

14. Simplify the following expressions:

(i) $2^{\frac{2}{3}} \cdot 2^{\frac{1}{3}}$ (ii) $11^{\frac{1}{4}} \div 11^{\frac{1}{2}}$ (iii) $8^{\frac{1}{2}} \cdot 7^{\frac{1}{2}}$

15. Write seven axioms of Euclid's Geometry.

16. Simplify $\frac{\sqrt{3}-\sqrt{2}}{\sqrt{3}+\sqrt{2}} + \frac{\sqrt{3}+\sqrt{2}}{\sqrt{3}-\sqrt{2}}$ by rationalizing the denominator.

17. Use the Factor Theorem to determine whether $g(x)$ is a factor of $p(x)$ in each of the following cases:

- (i) $p(x) = x^3 - 4x^2 + x + 6$, $g(x) = x - 3$
- (ii) $p(x) = x^3 + 3x^2 + 3x + 1$, $g(x) = x + 2$

SECTION – D (4 marks each)

18. Three vertices of a rectangle are $(4, 2)$, $(-3, 2)$ and $(-3, 7)$. Plot these points and find the coordinates of the fourth vertex.

19. The taxi fare in a city is as follows: For the first kilometre, the fare is Rs 8 and for the subsequent distance it is Rs 5 per km. Taking the distance covered as x km and total fare as Rs y , write a linear equation for this information, and draw its graph.

20. If $x + y = 12$ and $xy = 27$, find the value of (i) $x^2 + y^2$ (ii) $x^3 + y^3$.