CLASS – X (MATHEMATICS)

Set – A

1. Which of the following statements is false:
(A) sum of 2 irrational numbers is always irrational
(B) product of 2 irrational numbers may be rational or irrational
(C) sum of 2 irrational numbers may be rational or irrational
(D) none of these

2. Which of the following pairs of numbers are co - prime ?
(A) 13, 17 (B) 81, 18
(C) 108, 26 (D) 42, 56

3. Which of the following is not a polynomial ?
(A) $x^3 + 1$ (B) $x + \frac{1}{x}$
(C) $x^2 - x$ (D) none of these

4. Which of the following polynomials has degree 2
(A) $\frac{x^2 + 1}{x^2}$ (B) $3x^2 + 5$
(C) $4x^3 - 3x^2 + 7$ (D) $8x^3 - 2$

5. If the coordinates of opposite vertices of a square are (1, 3) and (6, 0) the length of a side a square is
(A) $\sqrt{34}$ (B) $\sqrt{17}$
(C) 17 (D) 12

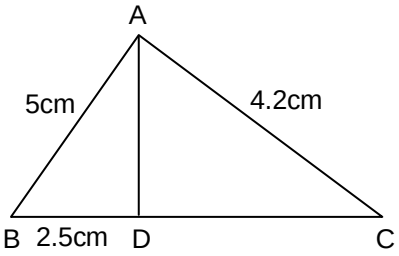
6. The distance between the points A(0, –1) and B(8, 3) is
(A) $4\sqrt{5}$ (B) $6\sqrt{5}$
(C) $8\sqrt{5}$ (D) none of these

7. The equations $3x + 4y = 6$ and $\frac{3}{2}x + 2y = 4$ have
(A) unique solution (B) no solution
(C) infinitely many solutions (D) two solutions

8. For how many values of k, the system $kx + 2y = 5$ and $3x + y = 1$ has a unique solution
(A) 0 (B) 1
(C) 2 (D) infinitely many

9. In the given figure, $\angle BAD = \angle CAD$, then DC is

(A) 2.1 cm
(B) 4.2 cm
(C) 1.05 cm
(D) 2 cm



10. If ΔABC and ΔDEF are similar such that $2AB = DE$ and $BC = 8cm$, then EF =

(A) 16 cm (B) 12 cm
(C) 8 cm (D) 4 cm

11. $(\text{cosec}\,\theta - \sin\theta)(\sec\theta - \cos\theta)(\cot\theta + \tan\theta)$ is equal to

(A) 0 (B) $\sin\theta$
(C) -1 (D) 1

12. $(1 + \cot A - \text{cosec}\, A)(1 + \tan A + \sec A)$ is equal to

(A) 1 (B) -1
(C) 2 (D) None of these

13. Two cards are drawn at random from a pack of 52 cards. The probability of these two being aces is

(A) 1/26 (B) 1/221
(C) 1/2 (D) None of these

14. If the values of a, b, c is given from the set {1, 2, 3} where $a \neq b \neq c$ then the probability that the $b^2 - 4ac > 0$ is

(A) 1/3 (B) 1/6
(C) 1/4 (D) 2/3

15. The circumference of a circle of radius 4.2 cm is

(A) 26.4 cm (B) 55.44 cm
(C) 30.04 cm (D) 32.39 cm

16. The area of a circle with circumference 44 cm is

(A) 149 cm^2 (B) 151 cm^2
(C) 154 cm^2 (D) 156 cm^2

17. If one root of quadratic equation $2x^2 + kx - 6 = 0$ is 2 then the other root is

(A) -1 (B) 2
(C) $-\frac{3}{2}$ (D) $\frac{3}{2}$

18. The roots of $4x^2 - 4ax + (a^2 - b^2) = 0$ are

(A) a + b, a – b (B) $\frac{a+b}{2}, \frac{a-b}{2}$
(C) a + b , ab (D) $\frac{a+b}{2}$, ab

19. Maximum number of common tangents that can be drawn to two circles is
(A) 2 (B) 3
(C) 4 (D) 6

20. Two different tangents can be drawn from a point to a circle. The point is
(A) the centre of the circle (B) on the circle
(C) inside the circle (D) outside the circle

21. Which of the following is a term of the sequence 3, 7, 11, ……..?
(A) 184 (B) 185
(C) 186 (D) 187

22. How many terms are there in the sequence?
3, 17, 31, ……., 101 ?
(A) 7 (B) 6
(C) 8 (D) 9

23. A man on the bank of a river observes that the angle subtended by a tree on the opposite bank is 60°. While moving backward to a point in a straight line with the trees foot and moving to a position of 100 m from his former position, he finds that angle to be 30°. What is the height of the tree and the breadth of the river?
(A) 50, 25 m (B) $50\sqrt{3}$, 50 m
(C) 50, $50\sqrt{3}$ m (D) 52, $50\sqrt{3}$ m

24. From the top of a building 60m, then angles of depressions of top and bottom a lamp post are observed to be 30° and 60°. The height of light house is
(A) 40 m (B) 60 m
(C) 20 m (D) 80 m

25. Which of the following is not a measure of central tendency?
(A) mean (B) median
(C) mode (D) standard deviations

26. The algebraic sum of the deviations of a frequency distribution from its mean is
(A) always positive (B) always negative
(C) 0 (D) a non-zero number

27. A solid is hemispherical at the bottom and conical above. If the surface areas of the two parts are equal, then the ratio of its radius and the height of its conical part is
(A) 1 : 3 (B) 1 : $\sqrt{3}$
(C) 1 : 1 (D) $\sqrt{3}$: 1

28. A circus tent is cylindrical to a height of 4 m and conical above it. If its diameter is 105 m and its slant height is 40 m, the total area of the canvas required in m^2 is
(A) 1760 (B) 2640
(C) 3960 (D) 7920