CBSE MOCK TEST PAPER

MCQ PATTERN

Mathematics–X: Term–1 PAPER - 1

Time: 90 Minutes **Max. Marks: 40**

General Instructions:

(i) ***All questions are compulsory.***

(ii) ***There are 40 questions in all.***

(iii) ***This question paper contains Multiple Choice Questions (MCQs), Case-Based MCQs and Assertion-Reason MCQs.***

(iv) ***Only one of the options in every question is correct.***

(v) ***An OMR sheet of every practice paper is given. The candidate has to give his/her answer of the question by darkening the circle against that question.***

Choose and write the correct option in the following questions.

1. **The product of three consecutive integers is divisible by**

(*a*) 5 (*b*) 6 (*c*) 7 (*d*) none of these

2. **The largest number which divides 615 and 963 leaving remainder 6 in each case is**

(*a*) 82 (*b*) 95 (*c*) 87 (*d*) 93

3. **The decimal expansion of number $\frac{46}{2^2 \times 5 \times 3}$ is**

(*a*) terminating (*b*) non-terminating repeating

(*c*) non-terminating non-repeating (*d*) none of these

4. **If two positive integers a and b are written as $a = x^4 y^2$ and , $b = x^2 y^3$; x, y are prime numbers, then HCF (a, b) is**

(*a*) $x^4 y^3$ (*b*) xy (*c*) $x^2 y^3$ (*d*) $x^2 y^2$

5. **If the LCM of p and 18 is 36 and the HCF of p and 18 is 2 then p =**

(*a*) 2 (*b*) 3 (*c*) 4 (*d*) 1

6. **If the product of zeroes of the polynomial $x^2 - 9x + a$ is 8, then its zeroes are**

(*a*) –1, –8 (*b*) 1, –8 (*c*) –1, 8 (*d*) 1, 8

7. **The value of k for which the system of equations $2x + ky = 12$, $x + 3y - 4 = 0$ are inconsistent is**

(*a*) $\frac{21}{4}$ (*b*) $\frac{1}{6}$ (*c*) 6 (*d*) $\frac{4}{21}$

8. **One equation of a pair of dependent linear equations is $-5x + 7y = 2$. The second equation can be**

(*a*) $10x + 14y + 4 = 0$ (*b*) $-10x - 14y + 4 = 0$

(*c*) $-10x + 14y + 4 = 0$ (*d*) $10x - 14y = -4$

9. **A pair of linear equation is consistent if their graph lines will be**

(*a*) intersecting or parallel (*b*) intersecting or coincident

(*c*) coincident or parallel (*d*) can't say

10. **The value of k for which the system of equations $2x + 3y = 5$ and $4x + ky = 10$ has infinitely many solutions is**

(*a*) $k = -3$ (*b*) $k \neq -3$

(*c*) $k = 0$ (*d*) none of these

11. **The graph of the equation $x - y = 0$ is**

(*a*) parallel to x-axis (*b*) parallel to y-axis

(*c*) passing through origin (*d*) none of them

12. **The perimeter of triangle formed by the points (0, 0), (2, 0) and (0, 2) is**

(*a*) 4 units (*b*) 6 units

(*c*) $6\sqrt{2}$ units (*d*) $4 + 2\sqrt{2}$ units

13. **The distance of the point P (5, –1) from the y-axis is**

(*a*) 5 units (*b*) 2 units

(*c*) 3 units (*d*) 7 units

14. **If a perpendicular is drawn from the vertex of the right angle of a right triangle to the hypotenuse then triangle on both sides of the perpendicular is similar to**

(*a*) whole triangle (*b*) each other

(*c*) both (*a*) and (*b*) (*d*) none of them

15. **O is any point inside a rectangle $ABCD$. Then $OB^2 + OD^2$ is equal to**

(*a*) $OA^2 + OC^2$ (*b*) $BA^2 + OB^2$

(*c*) $OB^2 + OC^2$ (*d*) none of them

16. **If $\sin\theta - \cos\theta = 0$, then the value of $(\sin^4\theta + \cos^4\theta)$ is:**

(*a*) 1 (*b*) $\frac{3}{4}$ (*c*) $\frac{1}{2}$ (*d*) $\frac{1}{4}$

17. $\frac{\tan\theta}{\sec\theta - 1} + \frac{\tan\theta}{\sec\theta + 1}$ **is equal to**

(*a*) $2\tan\theta$ (*b*) $2\sec\theta$

(*c*) $2\operatorname{cosec}\theta$ (*d*) $2\tan\theta\sec\theta$

18. **$9\sec^2 A - 9\tan^2 A$ is equal to**

(*a*) 1 (*b*) 9 (*c*) 8 (*d*) 0

19. $\sqrt{\frac{1 + \sin\theta}{1 - \sin\theta}}$ **is equal to**

(*a*) $\sec\theta + \tan\theta$ (*b*) $\sec\theta - \tan\theta$

(*c*) $\sec^2\theta + \tan^2\theta$ (*d*) $(\sec^2\theta - \tan^2\theta)$

20. **The ratio of area of two circles whose ratio of circumference is 3:1 will be**

(*a*) 3 : 1 (*b*) 1 : 3 (*c*) 1 : 9 (*d*) 9 : 1

21. **The area of a circle is 49π cm^2. Its circumference is**

(*a*) 7π cm (*b*) 14π cm (*c*) 21π cm (*d*) 28π cm

22. **An arc of a circle is of length 5π cm and the sector it bounds has an area of 20π cm^2. The radius of circle is**

(*a*) 1 cm (*b*) 5 cm (*c*) 8 cm (*d*) 10 cm

23. **A wire can be bent in the form of a circle of radius 35 cm. If it is bent in the form of a square, then its area will be**

(*a*) 3025 cm^2 (*b*) $\frac{3025}{2}$cm^2 (*c*) 1225 cm^2 (*d*) 2450 cm^2

24. **Which of the following cannot be the probability of an event?**

(*a*) $\frac{1}{4}$ (*b*) 0 (*c*) $-\frac{1}{2}$ (*d*) 0.8

25. **The probability expressed as a percentage of a particular occurrence can never be**

(*a*) less than 100 (*b*) less than 0

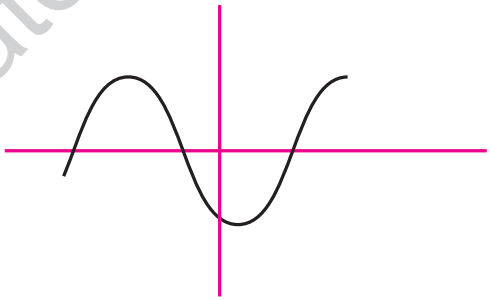
(*c*) greater than 1 (*d*) anything but a whole number

26. **When a die is thrown once, the probability of getting an odd number less than 3 is**

(*a*) $\frac{1}{6}$.(*b*) $\frac{1}{3}$ (*c*) $\frac{1}{2}$ (*d*) 0

Case-based Question–1 :

A piece of ribbon is lying on the table as shown in the figure.



27. **What type of polynomial is represented by the given curve?**

(*a*) linear (*b*) cubic (*c*) quadratic (*d*) None of these

28. **How many zeroes does it have?**

(*a*) 0 (*b*) 1 (*c*) 2 (*d*) 3

29. **If $ax^3 + bx^2 + cx + d$ is a cubic polynomial, tshen sum of its zeros taken two at a time is**

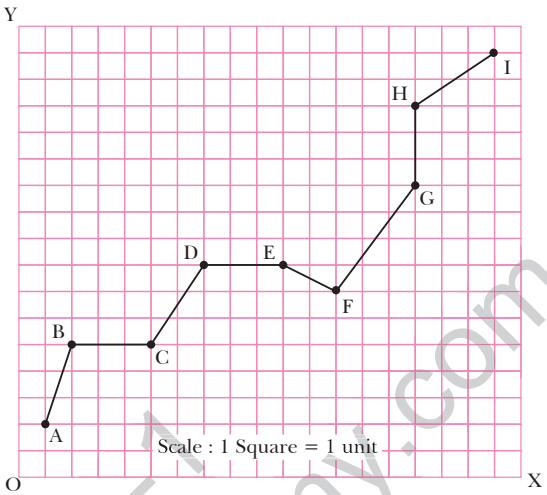
(*a*) $\frac{-b}{a}$ (*b*) $\frac{-c}{a}$ (*c*) $\frac{c}{a}$ (*d*) $\frac{b}{a}$

30. **If one of the zeroes of cubic polynomial $x^3 + ax^2 + bx + c$ is –1, then product of other two zeroes is**

(*a*) $a - b - 1$ (*b*) $a - b + 1$ (*c*) $b - a + 1$ (*d*) $b - a - 1$

Case-based Question–2 :

An officer explains his army men the route they need to follow to reach their target.



31. **The distance of the point *B* from the *x*-axis is**

(*a*) 2 units (*b*) 5 units (*c*) 1 unit (*d*) 4 units

32. **The coordinates of the points *D* and *E* are respectively**

(*a*) (8, 7), (8, 10) (*b*) (7, 8), (10, 8) (*c*) (8, 10), (8, 7) (*d*) (10, 8), (7, 8)

33. **The coordinates of the point which divides the line segment joining the points *F*(12, 7) and *G*(15, 11) in the ratio 1 : 2 internally, are**

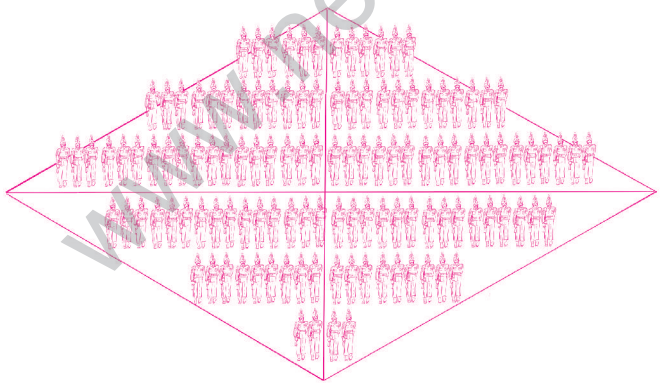
(*a*) (13, 8.3) (*b*) (8.3, 13) (*c*) (14, 9.6) (*d*) (9.6, 14)

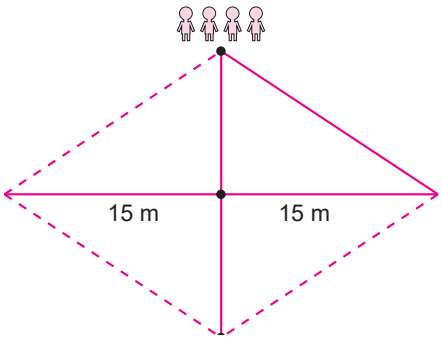
34. **A point (*x*, *y*) is equidistant from the points *B* and *C*. Then**

(*a*) $2y - 7 = 0$ (*b*) $y - x = 0$ (*c*) $2x - 7 = 0$ (*d*) $x + y = 0$

Case-based Question–3 :

There is a 40 m long boundary in the middle of a playground. In order to perform a marching activity, another boundary was drawn from the middle of the previous boundary as shown in the figure, 15 m each on both the sides. Then the four corners were joined.





35. **What special name can be given to the four sided figure?**

(*a*) Rectangle (*b*) Rhombus (*c*) Square (*d*) Trapezium

36. What property can be used to justify the name of the figure?

(*a*) Diagonals of a square are equal and bisect each other.

(*b*) Diagonals of a rectangle are equal.

(*c*) Diagonals of a rhombus are perpendicular bisector of each other.

(*d*) One pair of opposite sides of a trapezium is parallel.

37. The theorem that can be used to find the length of each side of the figure is

(*a*) Pythagoras Theorem (*b*) Thales Theorem

(*c*) Converse of Pythagoras Theorem (*d*) Converse of Thales Theorem

38. The perimeter of the four sided figure formed is

(*a*) 20 m (*b*) 40 m (*c*) 60 m (*d*) 100 m

Assertion-Reason Questions:

For question numbers 39 to 40, two statements are given-one labelled Assertion (A) and the other labelled Reason (R). Select the correct answer to these questions from the codes (a), (b), (c) and (d) as given below.

(*a*) Both *A* and *R* are true and *R* is the correct explanation for *A*.

(*b*) Both *A* and *R* are true and *R* is not the correct explanation for *A*.

(*c*) *A* is true but *R* is false.

(*d*) *A* is false but *R* is true.

39. Assertion (*A*) : The exponent of 3 in the prime factorisation of 2520 is 2.

Reason (*R*) : If n is an odd natural number greater then 1, then $\sqrt{n}$ is an irrational number.

40. Assertion (*A*) : The value of $\sin\theta = \frac{4}{3}$ is not possible.

Reason (*R*) : Hypotenuse is the largest side in any right angled triangle.