CLASS 10 MATH TEST PAPER 16

Class 10 - Mathematics

Time Allowed: 1 hour **Maximum Marks: 30**

Section A

1. LCM (850, 500) is: **[1]**

   a) $17 \times 5^2 \times 2^2$ b) 850×50

   c) $17 \times 5^3 \times 2$ d) 17×500

2. $(2 + \sqrt{2})$ is **[1]**

   a) A real number b) an integer

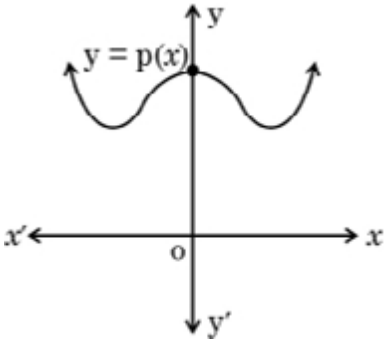
   c) a rational number d) an irrational number

3. (HCF $\times$ LCM) for the numbers 70 and 40 is: **[1]**

   a) 280 b) 2800

   c) 10 d) 70

4. The graph of y = p(x) is shown in the figure for some polynomial p(x). The number of zeroes of p(x) is/are: **[1]**



   a) 2 b) 3

   c) 0 d) 1

5. If α and β are zeroes of the polynomial $2x^2 = 9x + 5$, then value of $\alpha^2 + \beta^2$ is **[1]**

   a) 1 b) $\frac{71}{4}$

   c) $\frac{1}{4}$ d) $\frac{101}{4}$

6. If one root of the polynomial f(x) = $5x^2$ + 13x + k is reciprocal of the other, then the value of k is **[1]**

   a) 5 b) 0

   c) $\frac{1}{6}$ d) 6

7. The value of a so that the point (3, a) lies on the line represented by 2x - 3y = 5 is **[1]**

   a) $\frac{1}{3}$ b) – 1

   c) 1 d) $\frac{-1}{3}$

8. For what value of k, do the equations **[1]**

$3x - y + 8 = 0$

and $6x - ky = -16$

represent coincident lines?

a) –2 b) 2

c) $-\frac{1}{2}$ d) $\frac{1}{2}$

9. 3 chairs and 1 table cost ₹ 900; whereas 5 chairs and 3 tables cost ₹ 2,100. If the cost of 1 chair is ₹ x and the cost of 1 table is ₹ y, then the situation can be represented algebraically as **[1]**

a) x + 3y = 900, 3x + 5y = 2100 b) 3x + y = 900, 3x + 5y = 2100

c) 3x + y = 900, 5x + 3y = 2100 d) x + 3y = 900, 5x + 3y = 2100

10. Which of the following quadratic equations has -1 as a root? **[1]**

a) x^2 - 4x - 5 = 0 b) $-x^2$ - 4x + 5 = 0

c) x^2 + 3x + 4 = 0 d) x^2 - 5x + 6 = 0

11. The discriminant of the quadratic equation $2x^2$ + x - 1 = 0 is: **[1]**

a) 9 b) -9

c) -7 d) 7

12. If the roots of equation $ax^2 + bx + c = 0, a \neq 0$ are real and equal, then which of the following relation is true? **[1]**

a) $a = \frac{b^2}{c}$ b) $c = \frac{b^2}{a}$

c) $ac = \frac{b^2}{4}$ d) $b^2 = ac$

13. The common difference of an A.P. in which $a_{20} - a_{15} = 20$, is **[1]**

a) 4 b) 5

c) 5d d) 4d

14. Two A.P's have the same common difference. The first term of one of these is 8 and that of the other is 3. The difference between their 30th terms is **[1]**

a) 8 b) 11

c) 3 d) 5

15. The sum of first five multiples of 3 is **[1]**

a) 55 b) 65

c) 50 d) 45

16. In $\triangle$ABC and $\triangle$DEF, $\frac{AB}{DE} = \frac{BC}{FD}$. Which of the following makes the two triangles similar? **[1]**

a) $\angle B = \angle D$ b) $\angle B = \angle E$

c) $\angle A = \angle F$ d) $\angle A = \angle D$

17. In $\triangle ABC$ and, $\triangle$RPQ, AB = 4.5 cm, BC = 5 cm, CA = $6\sqrt{2}$ cm, PR = $12\sqrt{2}$ cm, PQ = 10 cm, QR = 9 cm. If $\angle A = 75^\circ$ and $\angle B = 55^\circ$, then $\angle P$ is equal to **[1]**

a) 55^o b) 75^o

c) 130^o

d) 50^o

18. If $\triangle ABC \sim \triangle DEF$ and $\angle A = 47^o$, $\angle E = 83^o$, then $\angle C$ is equal: **[1]**

a) 50^o

b) 130^o

c) 83^o

d) 47^o

19. **Assertion:** Zeroes of $f(x) = x^2 - 4x - 5$ are 5, -1 **[1]**

Reason: The polynomial whose zeroes are $2 + \sqrt{3}, 2 - \sqrt{3}$ is $x^2 - 4x + 7$.

a) Assertion and reason both are correct statements and reason is correct explanation for assertion.

b) Assertion and reason both are correct statements but reason is not correct explanation for assertion.

c) Assertion is correct statement but reason is wrong statement.

d) Assertion is wrong statement but reason is correct statement.

20. **Assertion (A):** The graphic representation of the equations $x + 2y = 3$ and $2x + 4y + 7 = 0$ gives a pair of coincident lines. **[1]**

Reason (R): The graph of linear equations $a_1x + b_1y + c_1 = 0$ and $a_2x + b_2y + c_2 = 0$ gives a pair of coincident lines if $\frac{a_1}{a_2} = \frac{b_1}{b_2} = \frac{c_1}{c_2}$.

a) Both A and R are true and R is the correct explanation of A.

b) Both A and R are true but R is not the correct explanation of A.

c) A is true but R is false.

d) A is false but R is true.

Section B

21. Find the HCF and LCM of 260 and 910 by prime-factorisation method. **[2]**

22. α, β are zeroes of the polynomial $x^2 - 6x + a$. Find the value of a, if $3\alpha + 2\beta = 20$. **[2]**

23. In a 2-digit number, the digit at the unit's place is 5 less than the digit at the ten's place. The product of the digits is 36. Find the number. **[2]**

24. Find the value of k for which the quadratic equation $(k + 4) x^2 + (k + 1) x + 1 = 0$ has equal roots. **[2]**

25. If the n^{th} terms of two A.P.s 23, 25, 27, ... and 5, 8, 11, 14, ... are equal, then find the value of n. **[2]**