



ANGEL'S PUBLIC SCHOOL

SAMPLE PAPER

PERIODIC TEST – I SESSION 2024 – 25

CLASS – X CODE – 041

SUBJECT : MATHEMATICS

TIME : 2 HRS

M.M:40

General Instructions :

- (a) Section – A contains 10 objective type questions each carries 1 mark.
- (b) Section – B contains 4 very short type subjective questions each carries 2 marks
- (c) Section – C contains 4 short type subjective questions each carries 3 marks.
- (d) Section – D contain two questions each carries 5 marks.

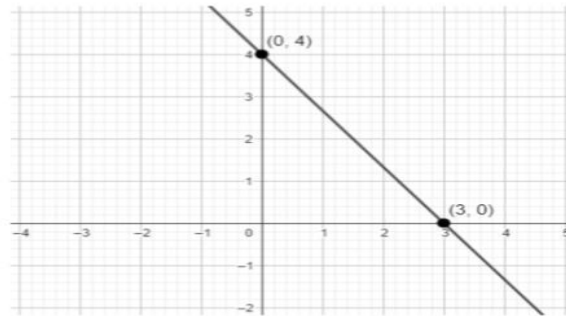
SECTION – A

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

- (a) xy (b) xy^2 (c) x^3y^3 (d) x^2y^2

2. The given linear polynomial $y = f(x)$ has

- (a) 2 zeros
- (b) 1 zero and the zero is '3'
- (c) 1 zero and the zero is '4'
- (d) No zero



3. $2\sqrt{3}$ is _____.

- (a) an integer (b) a rational number (c) an irrational number (d) a whole number

4. The exponent of 5 in the prime factorisation of 3750 is :

- (a) 3 (b) 4 (c) 5 (d) 6

5. The LCM of smallest two digit composite number and smallest composite number is :

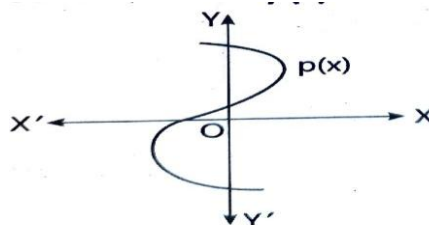
- (a) 12 (b) 4 (c) 20 (d) 44

6. The distance of the point $(3, 5)$ from the x – axis (in units) is :

- (a) 3 (b) -3 (c) 5 (d) -5

7. In figure, the graph of a polynomial $p(x)$ is shown. The number of zeroes of $p(x)$ is

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



8. If one zero of the polynomial $3x^2 + 11x + p$ is reciprocal of the other , then the value of p is :

- (a) 0 (b) 3 (c) $\frac{1}{3}$ (d) 3

9. Define coprime numbers with example.

10. What is the greatest possible speed at which a girl can walk 95m and 171 m in an exact number of times ?

(a) 17 m / min

(b) 19 m / min

(c) 13 m / min

(d) 23 m / min

SECTION – B

11. Check whether 8^n can end with the digit zero for any natural n ?

12. Find the value of k such that polynomial $x^2 - (k + 6)x + (2k - 1)$ has sum of its zeroes equal to half of their product .

13. If α, β are roots of $x^2 - 3x + 2$, find the polynomial whose roots are $(2\alpha - 1)(2\beta - 1)$.

14. Define composite numbers with example.

SECTION – C

15. Two numbers are in the ratio $2 : 3$, and their LCM is 180. What is HCF of these two numbers.

16. If α, β are the roots of a Polynomial $x^2 - 4\sqrt{3}x + 3$, then find the value of $\alpha + \beta - 3\alpha\beta$

17. What is the greatest Possible speed at which a girl can walk 95 m 171m is an exact number of minutes?

18. If $(x + a)$ is a factor of Polynomials $x^2 + lx + m$ and $x^2 + nx + k$ prove that $a = \frac{m-k}{l-n}$.

SECTION – D

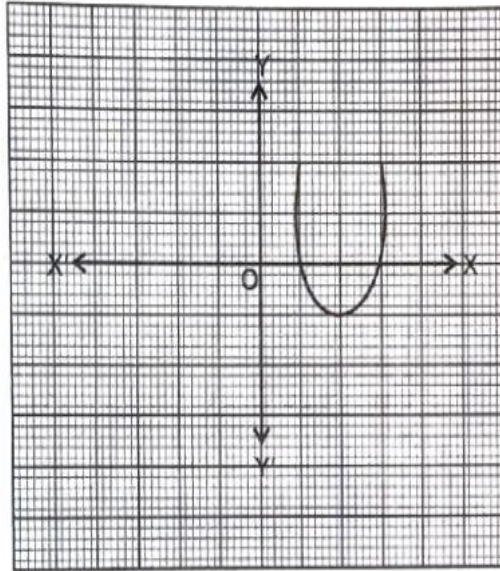
19. Prove that $\sqrt{2}$ is irrational number and hence show that $5 + \sqrt{2}$ also can irrational number.

OR

If α, β are of quadratic polynomial $2x^2 + 5x + k$, find the value of k , such that $(\alpha + \beta)^2 - \alpha \cdot \beta = 24$

20. CASE STUDY

Due to heavy storm an electric wire got bent as shown in the figure. It followed a mathematical shape given by a quadratic polynomial.



Based on the above information, answer the following questions :

- (i) Name of shape in which the wire bent.
- (a) Parabola (b) Linear (c) Hyperbola (d) Circular
- (ii) The zeroes of the polynomial are
- (a) 1 and 3 (b) -1 and -3 (c) 0, 3 (d) 0, 1
- (iii) What will be expression of the polynomial
- (a) $x^2 + 1$ (b) $x^2 + 3x + 2$ (c) $x^2 - 4x + 1$ (d) $x^2 + 2x - 2$
- (iv) What is the value of the polynomial, if $x = 2$?
- (a) -4 (b) -3 (c) -2 (d) -1
- (v) If the graph is either completely above x -axis or completely below x -axis, then the number of zeroes is
- (a) 0 (b) 2 (c) 4 (d) Infinite