

CBSE MIXED TEST PAPER-01

(Unit Test)

CLASS - X MATHEMATICS

[Time : 1.50 hrs.]

[M. M.: 40]

General Instructions:-

- (i) All questions are compulsory.
- (ii) Q. No. from 1 to 5 carries 1 mark each.
- (iii) Q. No. from 6 to 9 carries 2 marks each.
- (iv) Q. No. from 10 to 14 carries 3 marks each.
- (v) Q. No. from 15 to 16 carries 6 marks each

(Section - A)

1. Write a quadratic polynomial, the sum and product of whose zeroes are 3 and -2 respectively.
2. Write the condition to be satisfied by a q so that a rational number $\frac{p}{q}$ has a terminating decimal expansion.
3. For what value of k the quadratic equation $x^2 - kx + 4 = 0$ has equal roots?
4. Find the value of k so that the following system of equations has infinitely many solutions:
 $3x - y - 5 = 0$, $6x - 2y - k = 0$
5. The n th term of an AP is $7 - 4n$. Find its common difference.

(Section - B)

6. Given that $\text{HCF}(306, 657) = 9$, find $\text{LCM}(306, 657)$.
7. Find the zeroes of the quadratic polynomial $6x^2 - 3 - 7x$ and verify the relationship between the zeroes and the co-efficient of the polynomial.

8. Find the solution of the pair of linear equations:

$$5x + 3y = 35, 2x + 4y = 28 \quad \text{OR}$$

$$5x - 6y + 30 = 0, 5x + 4y - 20 = 0$$

9. Find the roots of the following quadratic equation by factorization.:

$$\sqrt{2}x^2 + 7x + 5\sqrt{2} = 0$$

(Section - C)

10. Show that $3 + 5\sqrt{2}$ is an irrational number.

11. Check whether the first polynomial is a factor of the second polynomial by dividing the second polynomial by the first polynomial:

$$x^3 - 3x + 1, x^5 - 4x^3 + x^2 + 3x + 1 \quad \text{OR}$$

$$2x^2 - 1 - x, 2x^4 + 5x^3 + 6x^2 - 8x - 5$$

12. Solve the following system of linear equation graphically:

$$3x - 2y - 1 = 0, 2x - 3y + 6 = 0$$

Shade the region bounded by the lines and x-axis.

13. Solve for x: $\frac{x-1}{x-2} + \frac{x-3}{x-4} = 3\frac{1}{3}$.

14. Find the sum of the first 51 terms of an AP, whose second and third terms are 14 and 18 respectively.

(Section - D)

15. A train travels a distance of 300 km at a uniform speed. If the speed of the train, is increased by 5 km an hour, the journey would have taken 2 hours less. Find the original speed of the train. **OR**

A train travels 360 km at a uniform speed. If the speed had been 5 km/h more, it would have taken 1 hour less for the same journey. Find the speed of the train.

16. A fraction becomes $\frac{9}{11}$, if 2 is added to both the numerator and the denominator. If 3 is added to both the numerator and the denominator it becomes $\frac{5}{6}$. Find the fraction.