AllCanMath

CLASS 10 MATH TEST PAPER 3
Class 10 - Mathematics

Time Allowed: 1 hour and 30 minutes   **Maximum Marks: 40**

Section A

1. If $\frac{\sqrt{3}-1}{\sqrt{3}+1} = a - b\sqrt{3}$, then   **[1]**

   a) a = b = 1   b) a = 2, b = 1

   c) a = 2, b = -1   d) a = - 2, b = 1

2. The HCF of two numbers is 27 and their LCM is 162. If one of the numbers is 54, what is the other number is: **[1]**

   a) 9   b) 81

   c) 45   d) 36

3. If $a = 2^3 \times 3, b = 2 \times 3 \times 5, c = 3^n \times 5$ and LCM (a, b, c) $= 2^3 \times 3^2 \times 5$, then n =   **[1]**

   a) 1   b) 4

   c) 3   d) 2

4. The number of polynomials having zeroes -3 and 5 is: **[1]**

   a) infinite   b) at most two

   c) only one   d) exactly two

5. The zeros of the polynomial $4x^2 + 5\sqrt{2}x - 3$ are   **[1]**

   a) $-3\sqrt{2}, \frac{\sqrt{3}}{2}$ b) $\frac{-3\sqrt{2}}{2}, \frac{\sqrt{2}}{4}$

   c) $-3\sqrt{2}, \frac{\sqrt{2}}{2}$ d) $-3\sqrt{2}, \sqrt{2}$

6. The sum and product of the zeroes of the polynomial x^2 - 6x + 8 are respectively   **[1]**

   a) $\frac{-3}{2}$ and 1   b) $\frac{-3}{2}$ and -1

   c) $\frac{3}{2}$ and 1   d) 6 and 8

7. The value of **p** if (-2, p) lies on the line represented by the equation 2x - 3y + 7 = 0, is   **[1]**

   a) -1   b) $\frac{13}{2}$

   c) $-\frac{13}{2}$ d) 1

8. The system of equations x - 4y = 8, 3x - 12y = 24   **[1]**

   a) has infinitely many solutions   b) may or may not have a solution

   c) has no solution   d) has a unique solution

9. The value of k for which the equations 3x – y + 8 = 0 and 6x + ky = –16 represent coincident lines, is: **[1]**

   a) 2   b) $-\frac{1}{2}$

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

10. **Assertion (A):** The perimeter of $\triangle$ABC is a rational number.   **[1]**
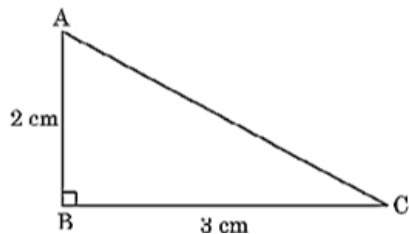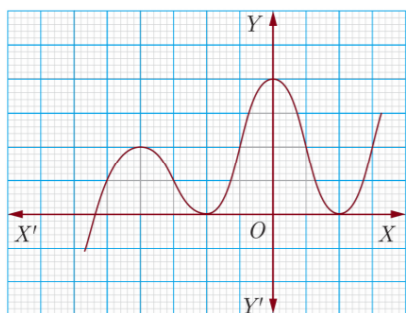
Reason (R): The sum of the squares of two rational numbers is always rational.

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.

11. **Assertion (A):** The graph y = f(x) is shown in figure, for the polynomial f(x). The number of zeros of f(x) is 3. **[1]**
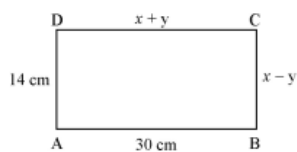
Reason (R): The number of zero of the polynomial f(x) is the number of point of which f(x) cuts or touches the axes.

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

12. Three bells ring at intervals of 6, 12 and 18 minutes. If all the three bells rang at 6 a.m., when will they ring together again? **[2]**

13. If α and β are the zeros of the quadratic polynomial f(x) = x^2 - p(x + 1) - c, show that $(\alpha + 1)(\beta + 1) = 1 - c$. **[2]**

14. In a given figure, ABCD is a rectangle. Find the values of x and y. **[2]**


Section C

15. Prove that $\sqrt{2}$ is an irrational number. **[3]**

16. One zero of the polynomial x^2- 2x - (7p + 3) is -1, find the value of p and the other zero. **[3]**

17. Seven times a two digit number is equal to four times the number obtained by reversing the order of its digits. If the difference between the digits is 3, determine the number. **[3]**

Section D

18. **Read the text carefully and answer the questions:** **[4]**

While playing in a garden, Samaira saw a honeycomb and asked her mother what is that. Her mother replied that it's a honeycomb made by honey bees to store honey. Also, she told her that the shape of the honeycomb formed

is a mathematical structure. The mathematical representation of the honeycomb is shown in the graph.
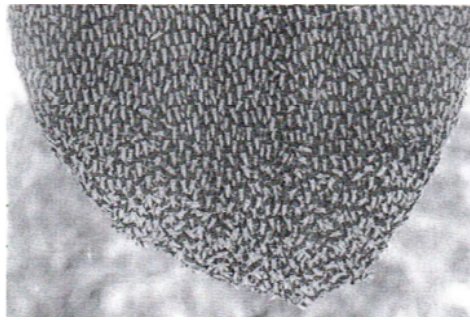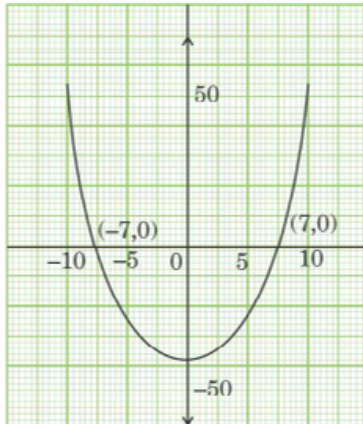
(a)   How many zeroes are there for the polynomial represented by the graph given?

(b)   Write the zeroes of the polynomial.

(c)   If the zeroes of a polynomial $x^2 + (a + 1) x + b$ are 2 and -3, then determine the values of a and b.

(d)   If the square of difference of the zeroes of the polynomial $x^2 + px + 45$ is 144, then find the value of p.

Section E

19.   If α and β are the zeroes of the polynomial $p(x) = 6x^2 + 5x - k$ satisfying the relation, $\alpha - \beta = \frac{1}{6}$, then find the value of k. **[5]**

20.   A shopkeeper sells a saree at 8% profit and a sweater at 10% discount, thereby getting a sum of ₹ 1008. If she had sold the saree at 10% profit and the sweater at 8% discount, she would have got ₹ 1028. Find the cost price of the saree and the list price (price before discount) of the sweater. **[5]**