

R. P. INTERNATIONAL SCHOOL (CBSE), AMBAD.

CH.4: QUADRATIC EQUATIONS_EXTRA QUESTIONS

Q1.Find the root of the equation: $x + \frac{1}{x} = 3$.

Q2.Solve the equation: $\frac{x+3}{x-2} - \frac{1-x}{x} = \frac{17}{4}$

Q3.Solve the quadratic equation:

$$x^2 - 4ax + 4a^2 - b^2 = 0, \quad 4x^2 - 4ax + (a^2 - b^2) = 0$$

Q4.Solve the quadratic equation: $9x^2 - 9(a+b)x + (2a^2 + 5ab + 2b^2) = 0$.

Q5.Solve the quadratic equation: $x^2 + 3x - (a^2 + a - 2) = 0$.

Q6. Solve the quadratic equation:

(i) $3\sqrt{5}x^2 + 25x - 10\sqrt{5} = 0$

(ii) $4\sqrt{3}x^2 + 5x - 2\sqrt{3} = 0$

(iii) $3x^2 - 2\sqrt{6}x + 2 = 0$

Q7. Solve the quadratic equation: $\frac{a}{x-b} + \frac{b}{x-a} = 2, x \neq a, x \neq b$.

Q8. Solve the equation : $\frac{a}{x-a} + \frac{b}{x-b} = \frac{2c}{x-c} \quad x \neq a, b, c$.

Q9. Solve the equation $x^2 - (\sqrt{3} + 1)x + \sqrt{3} = 0$.

Q10. Solve the quadratic equation

(i) $3x^2 + 2\sqrt{5}x - 5 = 0$

(ii) $x^2 + 5x + 5 = 0$

Q11.Solve for x: $\frac{1}{x+1} + \frac{2}{x+2} = \frac{4}{x+4}$

Q12. Solve the quadratic equation $abx^2 + (b^2 - ac)x - bc = 0$.

Q13. Solve for x : $\frac{x-1}{x-2} + \frac{x-3}{x-4} = 3\frac{1}{3}$.

Q14. Find the root of the quadratic equation $x^2 + 5x - (\alpha + 1)(\alpha + 6) = 0$

Q15. If $\frac{1}{2}$ is a root of the equation $x^2 + kx - \frac{5}{4} = 0$. Find the value of k .

Q16. Find the value of k if roots are real and equal $x^2 - 2x(1 + 3k) + 7(3 + 2k) = 0$.

Q17. Find the value of k if roots are real and equal $(k + 1)x^2 - 2(k - 1)x + 1 = 0$.

Q18. Determine the positive value of k for which the equation $x^2 + kx + 4 = 0$ and $x^2 - 8x + k = 0$ will both have real roots.

Q19. If the roots of the equation $(b - c)x^2 + (c - a)x + (a - b) = 0$ are equal, then prove that $2b = a + c$.

Q20. Find the value of k for which the roots of the equation $8kx(x - 1) + 1 = 0$ are real and equal.

Q21. Represent the following situation in the form of a quadratic equation: "The area of the rectangular plot is 528 m^2 . The length of the plot is one more than twice its breadth."

Q22. The sum of two numbers is 15. If the sum of their reciprocals is $\frac{3}{10}$, find the numbers.

Q23. A two digit number is such that the product of its digits is 18, when 63 is subtracted from the number, the digits interchange their places. Find the number.

Q24. The denominator of a fraction is one more than twice the numerator. If the sum of the fraction and its reciprocal is $1\frac{16}{21}$, find the fraction.

Q25. If α and β are the roots of the quadratic equation $x^2 - x - 90 = 0$. Find the value of $\frac{1}{\alpha} + \frac{1}{\beta}$

Q26. Find the value of: $\sqrt{12 + \sqrt{12 + \sqrt{12 + \dots \infty}}}$.

Q27. The numerator of a fraction is 2 less than the denominator . If the sum of the fraction and its reciprocal is $2\frac{4}{63}$, find the fraction

Q28. A two digit number is four times the sum of the digits. It is also equal to 3 times the product of digits. Find the numbers.

Q29. A sum of money was divided equally among a certain number of persons. Had there been six persons more, each would received a rupee less and if there had been four persons less each would have received a rupee more than he did. What are the sum of money and number of persons?

Q30. Two pipes running together can fill a tank in $11\frac{1}{9}$ minutes. If one pipe takes 5 minutes more than the other to fill the tank separately. Find the time in which each pipe would fill the tank separately?

Q31. The sum of the two numbers is 18. The sum of their reciprocals is $\frac{1}{4}$. Find the numbers.