QB365 Student Learing Managemnet System
Exam Name: Quadratic Equations - Practice 3
Std: 10th Standard - Maths
Chapter: Quadratic Equations

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Questions:

5 Marks

1. If a boy's age and his father's age amount together to 24years. Fourth part of the product of their ages exceeds the boy's age by 9years. Find how old they are.
2. Rs 6500 were divided equally among a certain number of persons. Had there been 15 more persons, each would have got Rs 30 less. Find the original number of persons.
3. A shopkeeper buys some books for Rs 80. If he had bought 4 more books for the same amount, each book would have cost Rs 1 less. Find the number of books he bought.
4. Check whether the following quadratic equations.
$x^3 - 4x^2 - x + 1 = (x - 2)^2$
5. Find the roots of the following quadratic equations, if they exist, by the method of completing the square
$4x^2 + 4\sqrt{3x} + 3 = 0$
6. A two-digit number is such that the product of the digit is 12. When 36 is added to the number the digits interchange their places. Find the two-digit number.
7. A shopkeeper buys a number of books for Rs.1200. If he had bought 10 more books for the same amount, each book would have cost him Rs. 20 less. How many books did he buy?
8. Two pipes running together can fill a cistern in $11\frac{1}{9}$ min. If one pipe takes 5 min more than the other to fill it. Find the time in which each pipe would fill the cistern.
9. State whether the following quadratic equations have two distinct real roots. Justify your answer.
(i) $x^2-3x+4=0$ (ii) $2x^2+x-1=0$
10. The product of Tanay's age (in years) five years ago and his age ten years later is 16. Determine Tanay's present age.

Multiple Choice Question

11. The equation x-1/x = -2 in standard form $ax^2 + bx + c = 0$ is written as
(a) $x^2 - 2x - 1 = 0$ (b) $x^2 + 2x - 1 = 0$ (c) $x^2 - 2x + 1 = 0$ (d) $x^2 + 2x + 1 = 0$
12. Write the condition, when given quadratic equation has no real roots
(a) $b^2 - 4ac = 0$ (b) $b^2 - 4ac > 0$ (c) Either A or C (d) $b^2 - 4ac < 0$
13. If 1/2 is a root of the equation $x^2 + kx - 5/4 = 0$ then the other root of the quadratic equation is
(a) 1/4 (b) -5/2 (c) -2 (d) 1/2
14. The value/s of x when $(x - 4)(3x + 2) = 0$ _____
(a) 4, -2/3 (b) -4, – 2/ 3 (c) 4, 2/3 (d) -4, 2/3
15. Which of the following equations has two distinct real roots?
(a) $5x^2 - 3x + 1 = 0$ (b) $x2 + 3x + 2\sqrt{2} = 0$ (c) $2x^2 - 3\sqrt{2}x + 9/4 = 0$ (d) $x^2 + x - 5 = 0$
16. The sum of areas of two squares is 468m2. If the difference of their perimeters is 24m, then the sides of the two squares are:
(a) 12m and 18m (b) 18m and 24m (c) 24m and 28 (d) 6m and 12m
17. If x = 1 is a root of equation $x^2 - Kx + 5 = 0$ then value of K is
(a) 5 (b) 6 (c) 4 (d) -6
18. The perfect square binomial obtained by adding a constant to the expression : $x^2 - 18x$ is
(a) $(x + 3)^2$ (b) $(x - 9)^2$ (c) $(x + 9)^2$ (d) $(x - 3)^2$
19. Which of the following equations has the sum of its roots as 3
(a) $2x^2-3x+6=0$ (b) $x^2+5x+6=0$ (c) $-x^2+3x-3=0$ (d) $3x^2-3x+3=0$
20. Divide 16 into two parts such that twice the square of the larger part exceeds the square of the smaller part by 164
(a) 11 and 5 (b) 12 and 4 (c) 10 and 6 (d) 14 and 2
21. The same value of x satisfies the equations $4x + 5 = 0$ and $4x^2 + (5 + 3p)x + 3p^2=0$, then p is
(a) 0 or 5/4 (b) ¼ or ½ (c) 0 or ¼ (d) 0 or ½
22. The solution of $x^2 + 4x + 4 = 0$ is
(a) None of these (b) 0 (c) -2 (d) 2
23. The roots of quadratic equation $x^2 - 9 = 0$ are
(a) ± 3 (b) ± 6 (c) ± 4 (d) ± 9
24. The roots of quadratic equation $ax^2 + bx + c = 0$ is given by
(a) $\frac{b\pm\sqrt{b^2-4ac}}{2c}$ (b) $\frac{-b\pm\sqrt{b^2-4ac}}{2c}$ (c) $\frac{b\pm\sqrt{b^2-4ac}}{2c}$ (d) $\frac{-b\pm\sqrt{b^2-4ac}}{2c}$
25. Reduction of a rupee in the price of onion makes the possibility of buying one more kg of onion for Rs.56. Find the original price of the onion per kg
(a) 7,-8 (b) 8 (c) 7 (d) 1
26. Find the two consecutive odd positive integers, sum of whose square is 290
(a) 9, 11 (b) 13, 15 (c) 11, 13 (d) 15, 17
27. Is -8 is a solution of the equation $3x^2 + 8x + 2 = 0$?
(a) Yes (b) No (c) Cannot be determined (d) None of these
28. A line segment AB is 8 cm in length. AB is produced to P such that $Bp^2 = AB \cdot AP$. Then, the length of BP is
(a) $5(\sqrt{5}+1)$ (b) $(\sqrt{5}+1)$ (c) $4(\sqrt{5}+1)$ (d) $(\sqrt{3}+1)$
29. If α and β are roots of equation $ax^2 + bx + c = 0$, then $\frac{\alpha}{a\beta+b} + \frac{\beta}{a\alpha+b}$ equals
(a) $\frac{2}{a}$ (b) $\frac{2}{b}$ (c) $\frac{2}{c}$ (d) $-\frac{2}{a}$
30. If $\frac{1}{2}$ is a root of the equation $x^2 + kx - \frac{5}{4} = 0$ then the value of k is
(a) 2 (b) -2 (c) $\frac{1}{4}$ (d) $\frac{1}{2}$
31. Any line is said to be a tangent to the curve if it intersects the curve at one point. If the line y = kx - 3 is a tangent to the curve $y = 2x^2 + 7$, then the possible values of k is
(a) $4\sqrt{5}$ (b) $-4\sqrt{5}$ (c) Both (a) and (b) (d) None of these

32. If the coefficient of x in the quadratic equation $x^2 + px + q = 0$ was taken as 17 in the place of 13 and its roots were found to be -2 and -15 then the roots of the original equation.

(a) 3,10 (b) -3, -10 (c) -3, 10 (d) 3, -10

33. Out of a certain number of saras birds, one-fourth the number are moving about lotus plants, $\frac{1}{9}th$ are coupled with $\frac{1}{4}$ th as well as 7 times the square root of the number move on a hill, 56 birds remain in vakula tree. What is the total number of birds?

(a) 576 (b) 567 (c) 556 (d) 557

34. If the quadratic equation $ax^2 + bx + c = 0$ has two real and equal roots, then "c" is equal to

(a) $\frac{-b}{2a}$ (b) $\frac{b}{2a}$ (c) $\frac{-b^2}{4a}$ (d) $\frac{b^2}{4a}$

35. The values of k for which the roots of quadratic equation $x^2 + 4x + k = 0$ are real, is

(a) $k \geq 4$ (b) $k \leq 4$ (c) $k \geq -4$ (d) $k \leq -4$

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