Mock Test for class 10th

Chapter: Quadratic Equation

Maximum Marks: 50 ***Time Allowed: 1 hr. 30 mints***

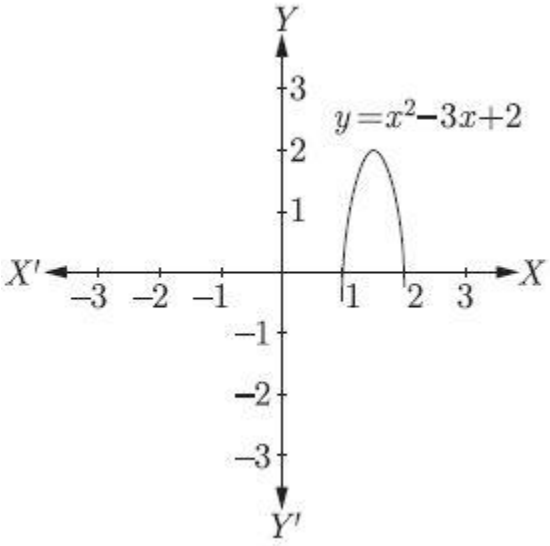
1. If $\frac{1}{2}$ is a root of the equation $x^2 + kx - \frac{5}{4} = 0$, then the value of k is
   a) 2
   b) -2
   c) $\frac{1}{4}$
   d) $\frac{1}{2}$
2. Each root of $x^2 - bx + c = 0$ is decreased by 2. The resulting equation is $x^2 - 2x + 1 = 0$, then
   a) $b = 6, c = 9$
   b) $b = 3, c = 5$
   c) $b = 2, c = -1$
   d) $b = -4, c = 3$
3. Value (s) of k for which the quadratic equation $2x^2 - kx + k = 0$ has equal roots is/are
   a) 0
   b) 4
   c) 8
   d) 0, 8
4. If the equation $(m^2 + n^2)x^2 - 2(mp + nq)x + p^2 + q^2 = 0$ has equal roots, then
   a) $mp = nq$
   b) $mq = np$
   c) $mn = pq$
   d) $mq = \sqrt{np}$
5. Which constant must be added and subtracted to solve the quadratic equation $9x^2 + \frac{3}{4}x - \sqrt{2} = 0$ by the method of completing the square?
   a) $\frac{1}{8}$
   b) $\frac{1}{64}$
   c) $\frac{1}{4}$
   d) $\frac{9}{64}$
6. 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
7. The linear factors of the quadratic equation $x^2 + kx + 1 = 0$ are
   a) $k \geq 2$
   b) $k \leq 2$
   c) $k \geq -2$

d) $2 \leq k \leq -2$

8. 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) $3, -10$
9. If one root of the quadratic equation $ax^2 + bx + c = 0$ is the reciprocal of the other, then
   a) $b = c$
   b) $a = b$
   c) $ac = 1$
   d) $a = c$
10. One of the two students, while solving a quadratic equation in x, copied the constant term incorrectly and got the roots 3 and 2. The other copied the constant term and coefficient of x^2 correctly as -6 and 1 respectively. The correct roots are
   a) $3, -2$
   b) $-3, 2$
   c) $-6, -1$
   d) $6, -1$
11. The quadratic equation $2x^2 - \sqrt{5}x + 1 = 0$ has
   a) Two distinct real roots
   b) Two equal real roots
   c) No real roots
   d) More than 2 real roots
12. The real roots of the equation $x^{2/3} + x^{1/3} - 2 = 0$ are
   a) 1, 8
   b) $-1, -8$
   c) $-1, 8$
   d) $1, -8$
13. $(x^2 + 1)^2 - x^2 = 0$ has
   a) Four real roots
   b) Two real roots
   c) No real roots
   d) One real roots
14. The equation $2x^2 + 2(p + 1)x + p = 0$, where p is real, always has roots that are
   a) Equal
   b) Equal in magnitude but opposite in sign
   c) Irrational
   d) Real
15. Out of a certain number of Saras birds, one-fourth the number are moving about lotus plants, $\frac{1}{9}^{\text{th}}$ are coupled with $\frac{1}{4}^{\text{th}}$ 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

16. If $\sqrt{x+10} - \frac{6}{\sqrt{x+10}} = 5$, then extraneous root of this equation is
    a) 26
    b) -9
    c) -26
    d) 9
17. If $sin\alpha$ and $cos\alpha$ are the roots of the equation $ax^2 + bx + c = 0$, then b^2 is
    a) $c^2 + 2ac$
    b) $a^2 + ac$
    c) $a^2 + 2ac$
    d) $c^2 + ac$
18. Draw the graph of $y = x^2 + x - 12$. If $y = 0$, then the area of the triangle formed by joining the interaction point of curve.
    a) 12 sq. units
    b) 24 sq. units
    c) 42 sq. units
    d) 48 sq. units
19. Plot the roots of the equation $x^2 - 4x + 3 = 0$ and $2y^2 - 7y + 3 = 0$ and find the area of the smallest triangle formed by joining these points and origin.
    a) 0.5 sq. units
    b) 0.05 sq. units
    c) 0.15 sq. units
    d) 0.25 sq. units
20. A graph of quadratic polynomial is given below



If we rotate the axes at an angle of $90°$ in anticlockwise direction, the figure remains at the same position. Find the equation of the graph.
    a) $y^2 + 3y + 2$
    b) $y^2 - 3y + 2$

c) $y^2 + 2y + 3$
d) $y^2 - 2y + 3$

21. The condition for one root of the quadratic equation $ax^2 + bx + c = 0$ to be twice the other, is
    a) $b^2 = 4ac$
    b) $2b^2 = 9ac$
    c) $c^2 = 4a + b^2$
    d) $c^2 = 9a - b^2$
22. If $x^2 + y^2 = 25, xy = 12$, then x
    a) $\{3, 4\}$
    b) $\{3, -3\}$
    c) $\{3, 4, -3, 4\}$
    d) $\{3, -4\}$
23. If $x = \sqrt{7 + 4\sqrt{3}}$, then $x + \frac{1}{x} =$
    a) 4
    b) 6
    c) 3
    d) 2
24. If the roots of the equation $px^2 + 2qx + r = 0$ and $qx^2 - 2\sqrt{pr}\, x + q = 0$ be real, then
    a) $p = q$
    b) $q^2 = pr$
    c) $p^2 = qr$
    d) $r^2 = pq$
25. If the ratio of the roots of the equation $x^2 + bx + c = 0$ is the same as that of $x^2 + qx + r = 0$, then
    a) $r^2 b = qc^2$
    b) $r^2 c = qb^2$
    c) $c^2 r = q^2 b$
    d) $b^2 r = q^2 c$