



# DOON INDIAN DEFENCE ACADEMY

## CLASS ASSIGNMENT – QUADRATIC EQUATIONS

- Q 1. What is sum of Square roots of the Equation  $x^2 + 2x - 143 = 0$  ?
- a. 170                                  b. 180                                  c. 190                                  d. 290
- Q 2. If  $x^2 + 6x - 27 > 0$  and  $x^2 - 3x - 4 < 0$  then x lies in interval?
- a. (3, 4)                                  b. {3, 4}                                  c.  $(-\infty, 3) \cup (4, \infty)$                                   d. (-9, 4)
- Q 3. The number of roots of the equation  $|x|^2 - |7x| + 12 = 0$  are?
- a. 1    b. 2    c. 3    d. 4
- Q 4. What are the roots of the equation  $|x|^2 - |14x| + 48 = 0$  ?
- a. +3, +4                                  b. +3, -3, +4, -4                                  c. -3, -4                                  d. +3, -4
- Q 5.  $(x - 2)^2 - 1 = 0$  has ?
- a. One Real Roots                                  b. Two Real Roots                                  c. Four Real Roots                                  d. Two imaginary roots
- Q 6. If roots of equation  $3ax^2 + 2bx + c = 0$  are in ratio 2 : 3, then which of the following is correct?
- a.  $8ac = 25b$                                   b.  $8ac = 9b^2$                                   c.  $8b^2 = 9ac$                                   d.  $8b^2 = 25ac$
- Q 7. The value of a for which roots  $\alpha, \beta$  of equation  $2x^2 + 6x + a = 0$  satisfies  $\frac{\alpha}{\beta} + \frac{\beta}{\alpha} < 2$  is ?
- a.  $a > 9/2$                                   b.  $a < 0$                                   c.  $a > 0$                                   d. None of these
- Q 8. The Value of a for which quadratic equation  $3x^2 + 2(a^2 + 1)x + (a^2 - 3a + 2) = 0$  possess roots of opposite sign?
- a.  $(-\infty, 0)$                                   b.  $(-\infty, -1)$                                   c. (1, 2)                                  d. (3/2, 2)
- Q 9. If roots of quadratic equation  $x^2 - bx + c = 0$  be two consecutive integers, then  $b^2 - 4c$  equals?
- a. -2    b. 3    c. 2    d. 1
- Q 10. If (1-p) is a root of quadratic equation  $x^2 + px + (1 - p) = 0$  then roots are
- a. 0, 1    b. -1, 1    c. 0, -1    d. -1, 2
- Q 11. If  $\alpha, \beta$  are roots of equation  $ax^2 + bx + c = 0$  then those of  $ax^2 + 2bx + 4c = 0$  are?
- a.  $\alpha/2, \beta/2$                                   b.  $2\alpha, 2\beta$                                   c.  $-2\alpha, -2\beta$                                   d.  $-\alpha, -\beta$
- Q 12. If  $\alpha, \beta$  are roots of equation  $ax^2 + bx + c = 0$  then equation whose roots are  $\frac{1}{\alpha+\beta}$  &  $\frac{1}{\alpha} + \frac{1}{\beta}$  is equal to?
- a.  $acx^2 + (a^2 + bc)x + bc = 0$                                   b.  $bcx^2 + (b^2 + ac)x + ab = 0$   
c.  $abx^2 + (c^2 + ab)x + ca = 0$                                   d. None of these
- Q 13. If roots of the equation  $x^2 - px + q = 0$  differ by unity then which of following is true ?
- a.  $p^2 = 4q + 1$                                   b.  $p^2 = 4q - 1$                                   c.  $q^2 = 4p + 1$                                   d.  $q^2 = 4p - 1$
- Q 14. If  $\alpha, \beta$  are roots of equation  $ax^2 + bx + c = 0$ , the equation whose roots are  $2+\alpha, 2+\beta$  is equal to?



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- a.  $ax^2 + x(4a - b) + 4a - 2b + c = 0$       b.  $ax^2 + x(4a - b) + 4a + 2b + c = 0$   
c.  $ax^2 + x(b - 4a) + 4a + 2b + c = 0$       d.  $ax^2 + x(b - 4a) + 4a - 2b + c = 0$

Q 15. If  $\alpha, \beta$  are roots of the equation  $x^2 - q(1 + x) - r = 0$  then what is value of  $(1+\alpha)(1+\beta)$

- a.  $1-r$       b.  $q-r$       c.  $1+r$       d.  $q+r$

Q 16. Equation formed by multiplying each root of  $ax^2 + bx + c = 0$  by 2 is  $x^2 + 36x + 24 = 0$ , then what is value of b:c

- a. 3:1      b. 1:2      c. 1:3      d. 3:2

Q 17. Equation formed by multiplying each root of  $ax^2 + bx + c = 0$  by 2 is  $x^2 + 36x + 24 = 0$ , then which one of the following is correct?

- a.  $bc = a^2$       b.  $bc = 36 a^2$       c.  $bc = 72 a^2$       d.  $bc = 108 a^2$

Q 18. If roots of equation are  $(m+n)$  and  $(m-n)$  then the quadratic equation will be?

- a.  $x^2 + 2mx + m^2 - mn + n^2 = 0$       b.  $x^2 + 2mx + (m - n)^2 = 0$   
c.  $x^2 - 2mx + m^2 - n^2 = 0$       d.  $x^2 + 2mx + m^2 - n^2 = 0$

Q 19. If roots of Quadratic Equation  $3x^2 + 5x + p = 0$  are real and unequal, then which of the following are correct ?

- a.  $P = 25/12$       b.  $p < 25/12$       c.  $p > 25/12$       d.  $p \leq 25/12$

Q 20. If  $\alpha, \beta$  are roots of  $x^2 + px - q = 0$ , and  $\gamma, \delta$  are roots of  $x^2 - px + r = 0$ , then  $(\beta + \gamma)(\beta + \delta)$  is ?

- a.  $p+r$       b.  $p+q$       c.  $q+r$       d.  $p-q$

Q 21. If one root of equation  $x^2 - \rho x + 12 = 0$  is even prime, while equation  $x^2 + \rho x + \mu = 0$  has equal roots, then  $\mu$  equals to ?

- a. 8      b. 16      c. 24      d. 32

Q 22. If  $x^2 - 1 \leq 0$  and  $x^2 - x - 2 \geq 0$  then x lies in the interval set?

- a. (1, -1)      b. (-1, 1)      c. (1, 2)      d. {-1}

Q 23. If x is real then value of  $\frac{x^2-3x+4}{x^2+3x+4}$  lies in the interval ?

- a. [1/3,3]      b. [1/5, 5]      c. [1/6, 6]      d. [1/7,7]