



## Ninth Grade - Quadratic Equations - Inequalities

1) Quadratic Equation:  $3x^2 - 7x + 8 = 0$  (a) Find the Discriminant, (b) Real or Not Real Roots, (c) Equal (one) or Unequal Roots, (d) Rational or Irrational Roots?

- (a) -23 (b) Real (c) Equal (d) Rational
- (a) -23 (b) Not Real (c) Unequal (d) None of these
- (a) -47 (b) Not Real (c) None of these (d) None
- (a) 7 (b) Real (c) None (d) None

2) Quadratic Equation  $4x^2 + 12x + 9 = 0$  Find the (a) Discriminant, (b) Real or Not Real Roots, (c) Equal (one) or Unequal Roots, (d) Rational or Irrational Roots?

- (a) 0 (b) Real (c) Equal Roots (d) Rational Roots
- (a) 0 (b) Real (c) Equal Roots (d) Rational Roots
- (a) 5 (b) Real (c) Equal Roots (d) Rational Roots
- (a) 1 (b) Not Real (c) Equal Roots (d) Rational Roots

3) Quadratic Equation  $16x^2 + 8x + 1 = 0$  Find the (a) Discriminant, (b) Real or Not Real Roots, (c) Equal (one) or Unequal Roots, (d) Rational or Irrational Roots?

- (a) 0 (b) Real (c) Not Equal (d) Irrational Roots
- (a) 0 (b) Real (c) Equal (d) Rational Roots
- (a) 5 (b) Not Real (c) Equal (d) Rational Roots
- (a) 1 (b) Not Real (c) Equal (d) Rational Roots

4) Quadratic Equation  $x^2 - 8x + 16 = 0$  Find the (a) Discriminant, (b) Real or Not Real Roots, (c) Equal (one) or Unequal Roots, (d) Rational or Irrational Roots?

- (a) 3 (b) Not Real (c) Equal (d) Rational Roots
- (a) 2 (b) Real (c) Unequal (d) Rational Roots
- (a) 3 (b) Not Real (c) Equal (d) Rational Roots
- (a) 0 (b) Real (c) Equal Roots (d) Rational Roots



5) Quadratic Equation  $-x^2 + 4x + 5 = 0$  Find the (a) Discriminant, (b) Real or Not Real Roots, (c) Equal (one) or Unequal Roots, (d) Rational or Irrational Roots?

- (a)-4 (b)Not Real (c)None (d)None
- (a)1 (b)Not Real (c)Equal Roots (d)Irrational Roots
- (a)0 (b)Not Real (c)Equal Roots (d)Rational Roots
- (a)0 (b)Real Roots (c)Un Equal Roots (d)Irrational Roots

6) Quadratic Equation  $-2x^2 - 9x - 5 = 0$  Find the (a) Discriminant, (b) Real or Not Real Roots, (c) Equal (one) or Unequal Roots, (d) Rational or Irrational Roots?

- (a)-1 (b)Real (c)Not Equal (d)Irrational Roots
- (a)-3 (b)Not Real (c)None (d)Rational Roots
- (a)0 (b)Not Real (c)Equal (d)Rational Roots
- (a)41 (b)Not Real (c)None (d)None

7) Quadratic Equation  $2x^2 + 7x + 3 = 0$  Find the (a) Discriminant, (b) Real or Not Real Roots, (c) Equal (one) or Unequal Roots, (d) Rational or Irrational Roots?

- (a)Discriminant = 17 (b)Real (c)Equal Roots (d)Irrational Roots
- (a)25 (b)Real (c)Not Equal Roots (d)Rational Roots
- (a)5 (b)Not Real (c)Equal Roots (d)Rational Roots
- (a)15 (b)Real (c)Not Equal Roots (d)Rational Roots

8) Quadratic Equation  $3x^2 + 6x + 1 = 0$  Find the (a) Discriminant, (b) Real or Not Real Roots, (c) Equal (one) or Unequal Roots, (d) Rational or Irrational Roots?

- (a)4 (b)Real (c)Not Equal Roots (d)Irrational Roots
- (a)-25 (b)Not Real Roots (c)Not Equal Roots (d)Irrational Roots
- (a)24 (b)Real (c)Not Equal Roots (d)Rational roots
- (a)14 (b)Not Real (c)Equal Roots (d)Rational roots



9) Quadratic Functions  $4x^2 + 7x - 2 = 0$  Find the (a) Discriminant, (b) Real or Not Real Roots, (c) Equal (one) or Unequal Roots, (d) Rational or Irrational Roots?

- (a)51 (b)Real (c)Equal Roots (d)Irrational Roots
- (a)85 (b)Real (c)Not Equal Roots (d)Rational Roots
- (a)87 (b)Not Real (c)Not Equal Roots (d)Rational Roots
- (a)81 (b)Real (c)Not Equal Roots (d)Irrational Roots

10) Quadratic Equation  $2x^2 + 3x - 8 = 0$  Find the (a) Discriminant, (b) Real or Not Real Roots, (c) Equal (one) or Unequal Roots, (d) Rational or Irrational Roots?

- (a)13 (b)Real (c)Equal Roots (d)Rational Roots
- (a)73 (b)Real (c)Not Equal Roots (d)Irrational Roots
- (a)83 (b)Not Real (c)Equal Roots (d)Rational Roots
- (a)13 (b)Not Real (c)Equal Roots (d)Irrational Roots

11) Quadratic Equation  $b^2 - 4ac > 0$  Find the Real or Not Real Roots and Equal (one) or Unequal Roots?

- Real,Not equal Roots
- Not Real,Not equal Roots
- Not Real,Equal Roots
- Real,Equal Roots

12) Quadratic Equation  $b^2 - 4ac = 0$  Find the (a) Real or Not Real Roots, (b) Equal (one) or Unequal Roots?

- (a)Real (b)Equal
- (a)Real (b)Not Equal
- (a)Not Real (b)Equal
- (a)Not Real (b)Not Equal Roots

13) Quadratic Equation  $b^2 - 4ac$



- Real
- Equal Roots
- None of these
- Not Real

14) Quadratic Equation  $b^2 - 4ac$  is a perfect square the roots. Find the (a) Real or Not Real Roots (b) Equal (one) or Unequal Roots (c) Rational or Irrational Roots?

- (a)Real (b)Equal (c)Rational Roots
- (a)Not Real (b)Equal (c)Irrational Roots
- (a)Real (b)Not equal (c)Rational Roots
- (a)Real (b)Equal (c)Irrational Roots

15) Find the number of roots the following equations  $x^2 + 5x + 6 = 0$

- One real roots
- Irrational roots
- Two real roots
- No real roots

16) Find the number of roots the following equations  $x^2 + x + 1 = 0$ ?

- No roots
- Two real roots
- Two non real roots
- One non real roots

17) Find the number of roots the following equations  $x^2 - 2x + 3 = 0$ ?

- Two non real roots
- One non real roots



- Two real roots
- One real roots

18) Find the number of roots the following equations  $x^2 - 2x - 3 = 0$ ?

- One real roots
- Two real roots
- No roots
- One non real roots

19) Find the number of roots the following equations  $2x^2 - 3x + 3 = 1$ ?

- No roots
- One real roots
- One non real roots
- Two non real roots

20) Find the number of roots the following equations:  $x^2 + 6x + 9 = 0$  ?

- One non real roots
- One real roots
- Two real roots
- Two non real roots

21) Show that the line  $y = 1 - x$  does not intersect with the graph of the curve  $y = x^2 + x + 3$ .

- Real roots
- No real roots
- One real root
- Irrational roots



22) Show that the line  $y = 2 - x$  does not intersect with the graph of the curve  $y = 3/x$  ?

- No real roots
- Irrational roots
- Real roots
- Equal roots

23) Show that the line  $y = 4 - x$  intersects with the graph of the curve  $y = 4/x$  at one point only

- No real roots
- Two real roots
- One real root
- Irrational roots

24) Show that the line  $y = x$  intersects with the graph of the curve  $y = 9/6 - x$  at one point only

- Two real root
- One real root
- Two non real roots
- One non real roots

25) Show that the function  $y = 3x^2 - 5x + 4$  is always positive for any value of  $x$ ?

- 0
- 1
- No real solution
- 2

26) Find the range of values  $t$  can take for the equation  $9x^2 + tx + 4 = 0$  to have two distinct real roots.

- $t < 10$
- $t < 12$
- $t < 15$
- $t < 16$



27) Find the range, or ranges, of values  $K$  can take for the equation  $Kx^2 - 4x + (5 - K) = 0$  to have 2 distinct real roots.

- $K > 2$
- $K < 4$
- $K > 7$
- $K < 5$

28) Find the range(s) of values  $b$  can take for  $9x^2 + bx + 4 = 0$  to have 2 real distinct roots

- $b > 12$
- $b < 10$
- $b > 9$
- $b < 11$

29) Find the range(s) of values  $k$  can take for  $x^2 + (k + 1)x + 1 = 0$  to have 2 distinct roots.

- $k > 5$
- $k < 3$
- $k > 1$
- $k < 1$

30) Find the range(s) of values  $k$  can take for  $2x^2 + (3 - k)x + k + 3 = 0$  to have 2 real distinct roots.

- $k > 12$
- $k < 10$
- $k > 11$
- $k < 15$