## 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)-47 (b) Not Real (c)None of these (d)None
  - (a) -23 (b)Real (c)Equal (d)Rational
  - (a) -23 (b)Not Real (c)Unequal (d)None of these
  - (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)1 (b)Not Real (c)Equal Roots (d)Rational Roots
  - (a)5 (b)Real (c)Equal Roots (d)Rational Roots
  - (a)0 (b)Real (c)Equal Roots (d)Rational Roots
  - (a)0 (b)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)5 (b)Not Real (c)Equal (d)Rational Roots
  - (a)0 (b)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)Un Equal (d)Rational Roots
  - (a)0 (b)Real (c)Equal Roots (d)Rational Roots
  - (a)3 (b) Not Real (c)Equal (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)0 (b)Real Roots (c)Un Equal Roots (d)Irrational Roots
  - (a)-4 (b)Not Real (c)None (d)None
  - (a)0 (b)Not Real (c)Equal Roots (d)Rational Roots
  - (a)1 (b)Not Real (c)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)-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
  - (a)-1 (b)Real (c)Not Equal (d)Irrational Roots
- 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)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
  - (a)Discriminant = 17 (b)Real (c)Equal Roots (d)Irrational 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)14 (b)Not Real (c)Equal Roots (d)Rational 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

- 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)85 (b)Real (c)Not Equal Roots (d)Rational Roots
  - (a)87 (b)Not Real (c)Not Equal Roots (d)Rational Roots
  - (a)51 (b)Real (c)Equal Roots (d)Irrational 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)83 (b)Not Real (c)Equal Roots (d)Rational Roots
  - (a)13 (b)Not Real (c)Equal Roots (d)Irrational Roots
  - (a)13 (b)Real (c)Equal Roots (d)Rational Roots
  - (a)73 (b)Real (c)Not Equal Roots (d)Irrational Roots
- 11) Quadratic Equation b<sup>2</sup> 4ac > 0 Find the Real or Not Real Roots and Equal (one) or Unequal Roots?
  - Not Real, Equal Roots
  - · Real, Not equal Roots
  - Real, Equal Roots
  - Not Real, Not 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)Not Equal
  - (a)Real (b)Equal
  - (a)Not Real (b)Equal
  - (a)Not Real (b)Not Equal Roots
- 13) Quadratic Equation b2 4ac

- Not Real
- Real
- None of these
- Equal Roots
- 14) Quadratic Equation b<sup>2</sup> 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)Not Real (b)Equal (c)Irrational Roots
  - (a)Real (b)Not equal (c)Rational Roots
  - (a)Real (b)Equal (c)Rational Roots
  - (a)Real (b)Equal (c)Irrational Roots
- 15) Find the number of roots the following equations  $x^2 + 5x + 6 = 0$ 
  - Two real roots
  - · One real roots
  - · No real roots
  - · Irrational roots
- 16) Find the number of roots the following equations  $x^2 + x + 1 = 0$ ?
  - · Two real roots
  - No roots
  - · One non real roots
  - Two non real roots
- 17) Find the number of roots the following equations  $x^2$ ? 2x + 3 = 0?
  - · One real roots
  - · One non real roots

- · Two non real roots
- Two real roots
- 18) Find the number of roots the following equations  $x^2$ ? 2x? 3 = 0?
  - · One non real roots
  - · One real roots
  - No roots
  - Two real roots
- 19) Find the number of roots the following equations  $2x^2 ? 3x + 3 = 1$ ?
  - One non real roots
  - · One real roots
  - · Two non real roots
  - No roots
- 20) Find the number of roots the following equations:  $x^2 + 6x + 9 = 0$ ?
  - · One non real roots
  - Two non real roots
  - · One real roots
  - · Two real roots
- 21) Show that the line y = 1 x does not intersect with the graph of the curve  $y = x^2 + x + 3$ .
  - No real roots
  - · Irrational roots
  - · Real roots
  - · One real root

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

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

<b>33</b> /	Show that the lir	001-4	v intorcocte with	the graph of	tha cunva v -	. 1/v at ana	naint ank
<b>Z</b> 31	Snow that the III	1ev=4-2	x intersects with	the draph of	tne curve v =	: 4/x at one	point only

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

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

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

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

- 0
- 2
- No real solution
- 1

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 16
- t 12
- t 15

27)	Find the range, or ranges,	of values K can take t	for the equation Kx <sup>2</sup> ?	4x + (5?K) = 0	to have 2
disti	nct real roots.				

- K 2
- K 4
- K 7
- K 5

28	Find the range(s)	of values hica	n take for $9y^2 + hy$ .	+4=0 to have 2 rea	distinct roots
20	/	<i>)</i> Ui vaiues D Ga	I Lake IOI 3X + DX	T 4 = 0 10 Have 2 lea	i distil ict icces

- 12
- b 10
- b 11
- b 9

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 1
- k 3
- 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 10
- k 15
- k 12
- k 11