

Name key Date _____ Hour _____

Section 5.6 - the quadratic formula and the discriminant

Algebra 2 Trig G

Standard Form of a Quadratic Equation -

$$ax^2 + bx + c = 0$$



The Discriminant -

$$d = b^2 - 4ac$$

If the discriminant is POSITIVE, then there are 2 real roots

If the discriminant is ZERO, then there is 1 root

If the discriminant is NEGATIVE, then there are 2 complex roots
(imaginary)

Find the value of the discriminant for each quadratic equation, and describe the solutions:

$$a=1, b=-11, c=10$$

$$1) x^2 - 11x + 10 = 0$$

$$(-11)^2 - 4(1)(10)$$

$$121 - 40$$

$$\textcircled{81}$$

2 real
roots

$$a=1, b=8, c=16$$

$$2) x^2 + 8x + 16 = 0$$

$$(8)^2 - 4(1)(16)$$

$$64 - 64$$

$$\textcircled{0}$$

1 real
root

$$3) x^2 + 3x + 1 = 0$$

$$(3)^2 - 4(1)(1)$$

$$9 - 4$$

$$\textcircled{5}$$

2 real
roots

$$4) x^2 + 2x + 7 = 0$$

$$(2)^2 - 4(1)(7)$$

$$4 - 28$$

$$\textcircled{-24}$$

2 imaginary
roots

The Quadratic Equation -

Solving quadratic equations using the quadratic equation:

$$5) x^2 + 4x - 12 = 0$$

$$6) \quad x^2 + 3x + 1 = 0$$

$$7) \quad x^2 - 34x = -289$$

$$8) \quad x^2 + 13 = 6x$$

Try one on your own!

$$9) \quad x^2 - 4x = -5$$