* A **quadratic equation** is as an equation of degree 2, **meaning** that the highest exponent of this function is 2.

* The quadratic formula is used to solve an equation of the form $ax^2 + bx + c = 0$

*This formula can solve any equation that can be solved by factoring and completing the square

Quadratic Formula: $x = \dfrac{-b \pm \sqrt{b^2 - 4ac}}{2a}$ given $ax^2 + bx + c = 0$

Solve for x below using quadratic formula

1. $x^2 - 5x + 6 = 0$	2. $x^2 + 24x = 4$
3. $2x^2 + 10 = x$	4. $2x^2 - 9 = 0$

The Discriminant is number (from the expression) inside the square root of the quadratic formula.

Since the quadratic formula is $x = \dfrac{-b \pm \sqrt{b^2 - 4ac}}{2a}$, the discriminant is the $b^2 - 4ac$

The discriminant describes the **nature** , or the type, of solutions
If the Discriminant is **positive**, there are 2 real answers (2 real roots)
If the Discriminant is **negative**, there are 2 imaginary answers (2 imaginary roots)
If the Discriminant is **zero**, there is 1 real answer. (2 real answers being the same value) (1 real root)

Find the discriminant for the below and describe the type of roots for each equation:

5. $x^2 - 5x + 6 = 0$ 6. $x^2 + 24x - 4 = 0$ 7. $2x^2 - x + 10 = 0$ 8. $2x^2 - 9 = 0$

a) Solve equation using quadratic formula   b) find discriminant   c) describe the nature of the roots

9. $2x^2 - 3x - 5 = 0$

10. $x^2 + 12x = 3$

11. $2x^2 + 9 = 3x$

12. $2x^2 - 7 = 0$

<u>**Quadratic Formula and Discriminant Day 1 Homework**</u>

Sept 16, 2015 (Wed)

a) Solve equation using quadratic formula b) find discriminant c) describe the nature of the roots

1. $4x^2 - 11x = 3$

2. $x^2 + 7x = 5$

3. $5x^2 + 1 = 3x$

4. $5x^2 - 9 = 0$

a) Solve equation using quadratic formula   b) find discriminant   c) describe the nature of the roots

5. $-7 + 3x^2 = 4x$

6. $x^2 + 11x = -4$

7. $2x^2 + 13 = 5x$

8. $3x^2 - 17 = 0$