Math 3 **3.4 The Quadratic Formula** Unit 3

*SWBAT use the discriminate to find the number of solutions of a quadratic equation.*

*SWBAT solve quadratic equations using the quadratic formula.*

The solutions of a quadratic equation of the form  are given by the following formula:

**The Quadratic Formula**

The Discriminant: determines the number and type of roots

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Value of Discriminant  b2– 4ac | b2– 4ac is positive and a **perfect square** | b2– 4ac is positive and is NOT a **perfect square** | b2– 4ac = 0 | b2– 4ac < 0  (a negative number) |
| Type and Number of Roots |  |  |  |  |
| Example of Graph of Related Function |  |  |  |  |

**Example 1:** Find the value of the discriminant, and then state the number and type of solutions.

1. 
2. 
3. 
4. 

**Example 2:** Find the value of k, given the equation, for each of the following.

1. Two imaginary solutions
2. One real solution
3. Two real solutions

**The Quadratic Formula**

**Using the Quadratic Formula**

What are the roots of the equation ? Use the quadratic formula to solve.

What are the solutions of ? Use the quadratic formula to solve.

What are the roots of the equation ? Use the quadratic formula to solve.