**Zeroes of Quadratic Functions**

Name:

Solving Quadratics Functions Day 1

Students can:

* Identify zeroes of a factored, quadratic polynomial.
* Use the given zeroes to **sketch** a graph of a quadratic function.

**WARM-UP:**

Factor the trinomial. Check your answer.

$$4a^{2}-24a+20$$

**MINI LESSON:**

**Quadratic Function:** function with a \_\_\_\_\_\_\_\_\_\_ term, linear term, and constant term.

 Examples: $y=4x^{2}+3x+1$ $f(x)=x^{2}+x-100$

**Graph of a quadratic function:** the graph of a quadratic function will be a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_(U-shape)

If the coefficient for the quadratic term is positive, the parabola will open \_\_\_\_\_.

 Example: $y=3x^{2}+2x+1$

If the coefficient for the quadratic term is negative , the parabola will open \_\_\_\_\_\_\_.

 Example: $y=-2x^{2}+3x-3$

**Zero**: \_\_\_\_\_-\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of a quadratic function. (where function intersects \_\_-\_\_\_\_\_\_)



What are the x-intercepts for the given quadratic graph?

What is true about the y-value for any x-intercept?

**Steps to solve for x-intercepts:**

1. Factor the quadratic polynomial.

2. Substitute zero for \_\_\_\_\_\_\_\_\_\_\_\_\_\_.

3. Solve for x using the zero product property.

**Zero Product Property:**

For any real numbers a and b, if ab=0, then either \_\_\_\_\_ or \_\_\_\_\_\_, or both a and b equal \_\_\_.

**Solve for the zeroes for the following quadratic functions using the zero product property.**

1. $\left(x-2\right)\left(x-3\right)=y$ 2. $\left(2x+4\right)\left(x-2\right)=y$

**Solve for the x-intercepts for the following quadratic functions. Then sketch the graph.**

3. $2x^{2}-2x-24=y$ 4.$f\left(x\right)=3x^{2}-13x+12$

 

**WORKSHOP:**

**Solve for the zeroes using the zero product property.**

1. $\left(4x+16\right)\left(2x-12\right)=y$ 2. $\left(3x-24\right)\left(5x+20\right)=f(x)$

**Solve for the x-intercepts for the following quadratic functions. Then sketch the graph.**

3. $f\left(x\right)=12x^{2}-12x-72$ 4. $y=x^{2}-16x+64$

 