

**Warm Up**

**12/5/18**

**"Quiz 8 - 1"**

Not a quiz, but still will be graded

## Methods for solving quadratic functions

### Factoring:

The equation needs to be in the form:

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

Factor completely and then set each factor equal to 0. Solve each equation for x.

### Graphing:

The equation needs to be in the form:

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

Graph the equation and identify the roots, aka the x-intercepts, or the zeroes.

## SOLVE BY FACTORING

Steps:

1. Set the quadratic equation equal to zero
2. Factor
3. Set each factor equal to zero and solve for x
4. Write your answer using curly brackets

1.  $x^2 + 4x + 3 = 0$

$ac = \frac{3}{3/1}$

$(x^2 + 3x)(x + 3)$

$x(x + 3) | (x + 3)$

$(x + 1)(x + 3)$

$x + 1 = 0$   
 $x = -1$

$x + 3 = 0$   
 $x = -3$

$\{-3, -1\}$

2.  $x^2 + 11x + 24 = 0$

$$3. x^2 + x - 2 = 0$$

$$4. x^2 + 6x - 27 = 0$$

$$5. x^2 - 10x + 21 = 0$$

$$6. x^2 - x - 20 = 0$$

9.  $x^2 + 4x = 21$

$\frac{-21 \quad -21}{x^2 + 4x - 21 = 0}$

$(x^2 + 7x)(-3x - 21) \quad \frac{-21}{7|-3}$

$x(x+7) - 3(x+7)$

$(x-3)(x+7)$

$x-3=0 \quad x+7=0$   
 $x=3 \quad x=-7$

$\{-7, 3\}$

10.  $x^2 - 45 = 4x$

$\frac{-4x \quad -4x}{x^2 - 4x - 45 = 0}$

$(x^2 - 9x)(+5x - 45) \quad \frac{-45}{-9|5}$

$x(x-9) 5(x-9)$

$(x+5)(x-9)$

$x+5=0 \quad x-9=0$   
 $x=-5 \quad x=9$

$\{-5, 9\}$

$$11. x^2 - 5x - 64 = 7x$$

$$\quad -7x \quad -7x$$

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$$x^2 - 2x - 44 = 0$$

$$\begin{array}{r} -64 \\ \hline \end{array}$$

$$12. x^2 - 10x + 49 = 4x + 1$$

$$\quad -4x - 1 \quad -4x - 1$$

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$$x^2 - 14x + 48 = 0$$

$$(x^2 - 6x)(-8x + 48) \quad \frac{48}{-6 \cdot -8}$$
$$x(x-6) - 8(x-6)$$

$$(x-8)(x-6)$$

$$x-8=0 \quad x-6=0$$
$$x=8 \quad x=6$$

$$\{6, 8\}$$