

Name: \_\_\_\_\_ Hour: \_\_\_\_\_ Date: \_\_\_\_\_

## NOTES: Section 10.4 – Solving Quadratic Equations in Factored Form

Goals: #1 - I can solve quadratic equations in factored form.



*Homework: Section 10.4 Worksheet*

### Notes:

When two or more numbers are \_\_\_\_\_, each of the number is a \_\_\_\_\_ of the \_\_\_\_\_.

A \_\_\_\_\_ is in \_\_\_\_\_ form if it is written as the \_\_\_\_\_ of two or more \_\_\_\_\_.

### Examples:

To solve these equations, set the quadratic equation equal to \_\_\_\_\_ and use the \_\_\_\_\_:

- **Zero Product Property:**

**Example #1:** Solve the equation.

1.  $(x - 2)(x + 3) = 0$

2.  $x(x - 2) = 0$

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**Example #2:** Solve the equation.

1.  $(x + 5)^2 = 0$

2.  $(4x - 1)^2 = 0$

**You practice:** Solve the equation.

1.  $(2x - 1)(x + 7) = 0$

2.  $(a - 4)^2 = 0$

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

4.  $(x + 4)(x + 1) = 0$

**Example #2:** Solve the equation.

1.  $(2x + 1)(3x - 2)(x - 1) = 0$

2.  $(y - 3)^2(2y + 3) = 0$

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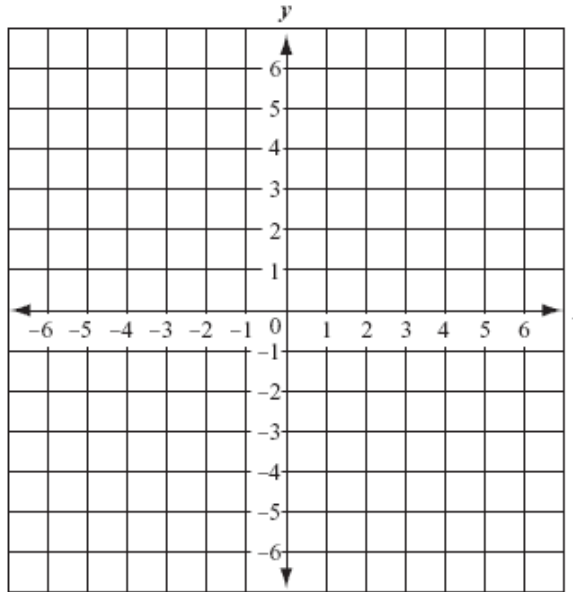
**You practice:** Solve the equation.

1.  $(x - 4)(x + 6)(4x + 3) = 0$

2.  $(2x + 1)(x - 8)^2 = 0$

**Exploration #2:** Graph  $y = (x + 4)(x + 2)$  using a table of values.

$x$	$y$



1. What are the  $x$ -intercepts?

2. What is the AOS?

3. What do you notice about your graph?

**Notes:**

We can use the following properties to graph *any* quadratic function in \_\_\_\_\_ form.

$$y = a(x - p)(x - q)$$

- The graph opens \_\_\_\_\_ if \_\_\_\_\_ and opens \_\_\_\_\_ if \_\_\_\_\_.
- The \_\_\_\_\_ are \_\_\_\_\_.
- The \_\_\_\_\_ is halfway between \_\_\_\_\_ and \_\_\_\_\_.

It has the equation \_\_\_\_\_.

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**Example #3:** Graph  $y = (x + 3)(x - 1)$ .

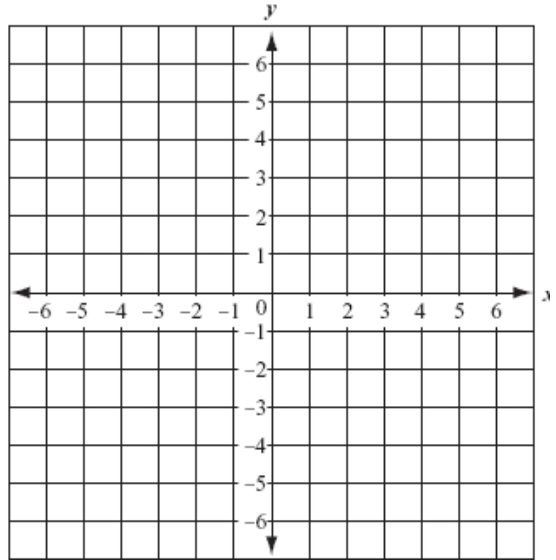
$x$ -intercepts: \_\_\_\_\_

AOS: \_\_\_\_\_

Vertex: \_\_\_\_\_

Opens: \_\_\_\_\_

$x$					
$y$					



**You practice:** Graph  $y = (x - 1)(x - 6)$ .

$x$ -intercepts: \_\_\_\_\_

AOS: \_\_\_\_\_

Vertex: \_\_\_\_\_

Opens: \_\_\_\_\_

$x$					
$y$					

