

Warm up-Factor the following.

1. $x^2+4x-12$

$$\begin{array}{r} -12x^2 \\ 6x \quad -2x \\ 4x \end{array}$$

$$(x+6)(x-2)$$

2. $-x^2+4x+21$

$$-1(x^2-4x-21)$$

$$\begin{array}{r} -21x^2 \\ -7x \quad 3x \\ -4x \end{array}$$

$$-1(x-7)(x+3)$$

Graph the following

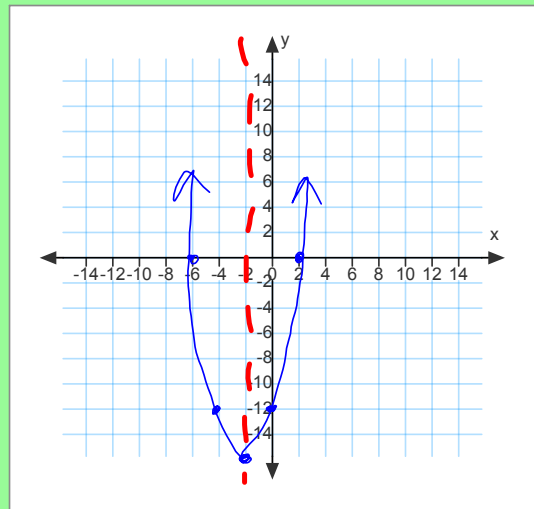
1. $x^2+4x-12$

AOS: $\frac{-b}{2a} = \frac{-4}{2} = -2$

vertex $y: 4 - 8 - 12 = -16$

$(x+6)(x-2)$

What are the x intercepts??



Zero Product Property

If a and b are two numbers and their product is zero, then a and/or b are zero.

$$a \cdot b = 0$$

Finding the x intercepts...

The x intercepts are when $y =$ zero.

When we factored $-x^2-4x-21$ we got...

To find the x intercepts...

1. Factor the quadratic
2. Set factored form equal to zero
3. Set each factor equal to zero and solve.

Graph by finding the x intercepts and vertex.

Example: $f(x) = x^2 + 6x + 5$

1. ~~$5x^2$
 $1x$ $5x$
 $6x$~~

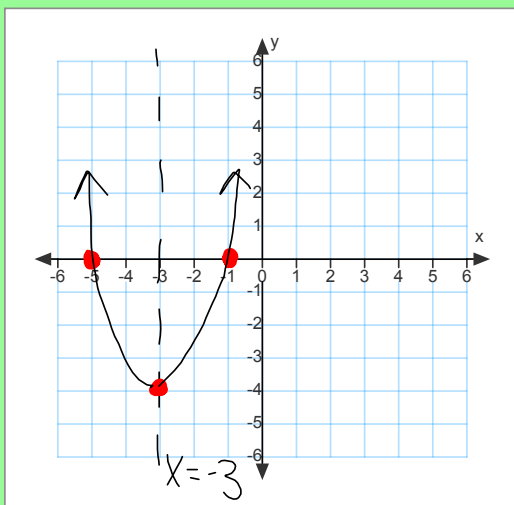
$$y = (x+1)(x+5)$$

2. $0 = (x+a)(x+b)$

3. $x+1=0$ $x+5=0$

$$x = -1$$

$$x = -5$$



$$x^2 + 6x + 5$$

$$9 - 18 + 5$$

Homework:

Worksheet Activity