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Worksheet - Zero Product Property Worksheet

Date: 2/19

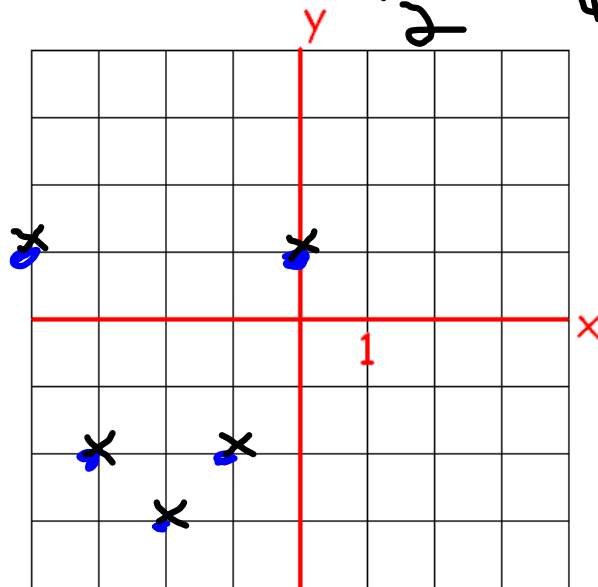
<http://www.mathvizza.com>

Bell Work

Directions: Please graph the following quadratic equation using an xy chart. Show your writing for each value of x that you plug in.

$$y = x^2$$
$$y = (x+2)^2 - 3$$

Annotations: An arrow points from the '2' in the second equation to the '2' in the first equation. Another arrow points from the '-3' in the second equation to the '3' in the first equation.



x	y
1	6
0	2
-1	2
-2	6

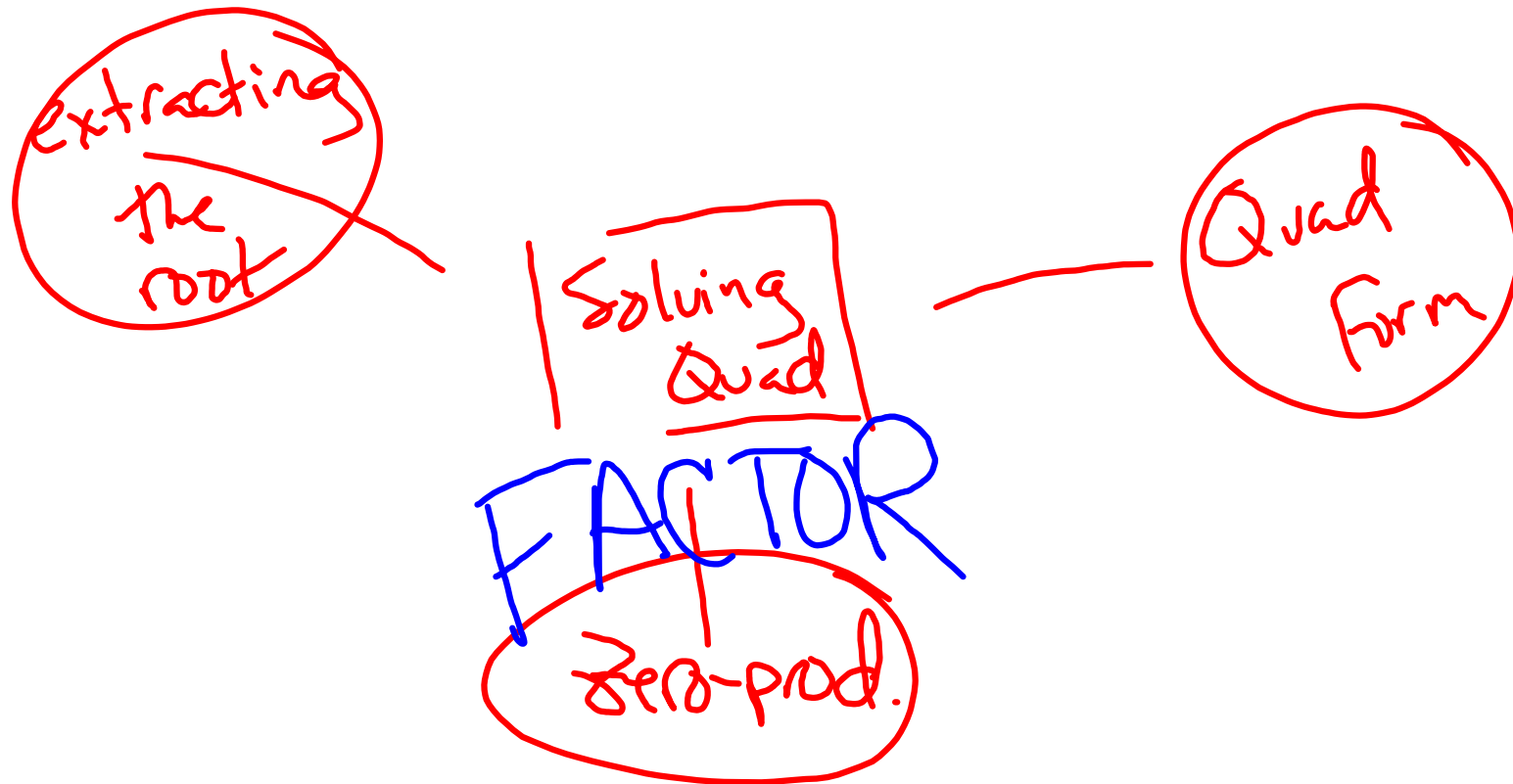
$$(1+2)^2 - 3$$
$$(0+2)^2 - 3$$
$$(-1+2)^2 - 3$$



LokanTimer2.swf

Objectives

1. The students will solve quadratic equations using the zero product property.



Zero Product Property

Given any equation of the form $ab=0$, we know that $a=0$ or $b=0$

1. $4x=0$

$4 \neq 0$ $x=0$

2. $xy=0$

$x=0$ $y=0$

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

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

4. $(2x-1)(3x+5)=0$

$2x-1=0$ $3x+5=0$

$2x=1$ $3x=-5$

$x=\frac{1}{2}$ or $x=-\frac{5}{3}$

Steps

0. Make sure the equation is set equal to zero.
1. Factor the quadratic expression.
2. Split the problem using the zero product property.
3. Solve each equation.

1. $x^2 = 3x$
 $-3x -3x$

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

$$x(x-3) = 0$$

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

2. $3x^2 = 9x$

$$3x^2 - 9x = 0$$

$$3x(x-3) = 0$$

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

$$x = 0 \quad x = 3$$

3. $(2x-9)(x-1) = 0$

$$2x - 9 = 0 \quad x - 1 = 0$$

$$2x = 9 \quad x = 1$$
$$x = 9/2 \text{ or } x = 1$$

4. $-x^2 - 4x - 3 = 0$

$$\frac{-1 \quad -3}{1 \quad 1}$$

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

$$(x+1)(x+3) = 0$$
$$x+1 = 0 \quad x+3 = 0$$