

Lesson 7.10- SWBAT solve quadratic and linear systems.

Kick off:

1) Solve by the quadratic formula
 $2x^2 + 39 = -18x$
 $2x^2 + 18x + 39 = 0$
 $a=2$
 $b=18$
 $c=39$

2) Solve by completing the square
 $x^2 + 12x + 32 = 0$
 $-32 -32$
 $ax^2 + bx = c$
 $x^2 + 12x = -32$

$(\frac{1}{2}b)^2$
 $x^2 + 12x + 36 = -32 + 36$
 $(x+6)(x+6) = 4$
 $\sqrt{(x+6)^2} = \sqrt{4}$
 $x+6 = \pm 2$
 $x+6 = +2$
 $x+6 = -2$
 $x = -4$
 $x = -8$

#1: $(4, 3)$
 $(1, 0)$

#2: $(-1, -4)$
 $(4, 6)$

#3: $(0, 1)$
 $(-2, -3)$

Linear and Quadratic Systems

Steps to Solve a Linear and Quadratic System

Example: $y=2x^2$
 $y=3x+2$

- Put each equation equal to y
- Set each equation equal to each other
- Solve for x.
- Substitute the value for x back in and solve for y
- Check solutions!

$2x^2 = 3x+2$
 $-3x-2$
 $2x^2 - 3x - 2 = 0$
 $(2x+1)(x-2) = 0$
 $x(2x+1) - 2(2x+1) = 0$
 $(x-2)(2x+1) = 0$
 $x-2=0$
 $x=2$
 $y=8$

$2x+1=0$
 $2x=-1$
 $x=-\frac{1}{2}$
 $y=5$

MP: $-4x^2$
 $+1-4$

#1 $2x^2 = y$
 $2(2)^2 = y$
 $8 = y$

#2 $2x^2 = y$
 $2(-\frac{1}{2})^2 = y$
 $.5 = y$

Directions: Solve each system.

1) Solve by factoring: $y+2=x^2+x$
 $y+x=1$

$y+2 = x^2+x$
 -2
 $y = x^2+x-2$

$y+x=1$
 $-x$
 $y = -x+1$

2) Solve by the quadratic formula: $y+11x+36=x^2$
 $y+12x=36$

3) Solve by completing the square: $y+5=x^2+3x$
 $y=x+3$

4) Solve by factoring: $y+4x=x^2+6$
 $y-x=2$