

Lesson 7.5- SWBAT solve quadratic equations by factoring and the quadratic equation

Kick off- Factor each of the following:

1) $x^2 - 8x$
 $\frac{x^2}{x} - \frac{8x}{x}$
 $x(x-8)$ G.C.F

2) $x^2 - 12$
 MP: $(x^2 - 4x) + 3x - 12$
 $-12x^2$
 $x(x-4) \quad 3(x-4)$
 \wedge
 $1a \cdot 1$
 $4 + 3$
 $(x+3)(x-4)$

$x^4 - 4$ DOTS
 $(x^2 + 2)(x^2 - 2)$

Solving by Factoring Steps:

- 1) Make = 0
- 2) Factor!
- 3) Set each factor = 0
- 4) Solve!

Ex: $x^2 + 3x - 4 = 0$
 $-4x^2 + 3x - 12$
 $x^2 - 1x - 12 = 0$
 $(x+3)(x-4) = 0$
 $x+3=0 \quad x-4=0$
 $\frac{x}{-3} = \frac{-4}{x}$
 $x = -3 \quad x = 4$

Solving by Quadratic Equations Steps:

- 1) Make = 0
- 2) Label a, b, c.
- 3) Plug into the formula
- 4) Simplify * undo

Ex: $5x^2 - 80 = 0$
 $-80 - 80$
 $5x^2 - 80 = 0$
 $a=5 \quad b=0 \quad c=-80$
 $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$
 $= \frac{0 \pm \sqrt{0^2 - 4(5)(-80)}}{2(5)}$
 $= \frac{\pm \sqrt{1600}}{10}$
 $= \frac{\pm 40}{10}$
 $x = \frac{40}{10} = 4$
 $x = \frac{-40}{10} = -4$

Solve each of the following by factoring:

1) $\frac{x}{25} = \frac{4}{x}$

2) $x^2 = 8x$

3) $-4x^2 - 8x - 3 = -3 - 5x^2$

4) $x^2 - 10x + 22 = -2$

$$\frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

Solve each of the following by the quadratic formula:

5) $9x^2 - 11 = 6x$

6) $2x^2 - x - 4 = 2$