Warm Up

Multiple Choice wkst (on table)

Solve for the x-intercepts.

$8x^2 - 4 = 4x$

Homework Questions?

Self Scoring Scale

4- I can *summarize* the concepts and explain it to others.

3- I can *apply* the concepts to answer questions correctly.

2- I can *apply* the concepts but with some *mistakes*.

1- I *need help* to know how to apply the concepts.

0- I *can't* apply the concepts even with help.

"9.2" Solving Quadratic Equations"
wkst #1-13

Warm Up

Write the Quadratic Formula without looking

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

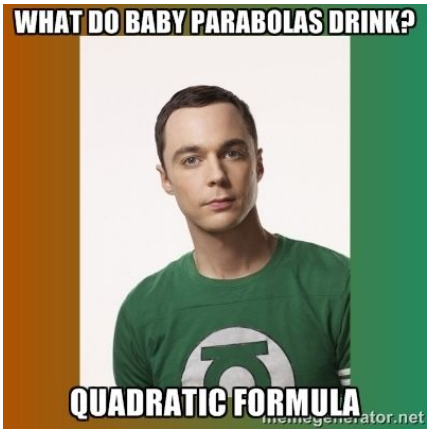
https://youtu.be/O8ezDEk3qCg

Homework Questions?

9.6 Solving Quadratic Equations by the Quadratic Formula

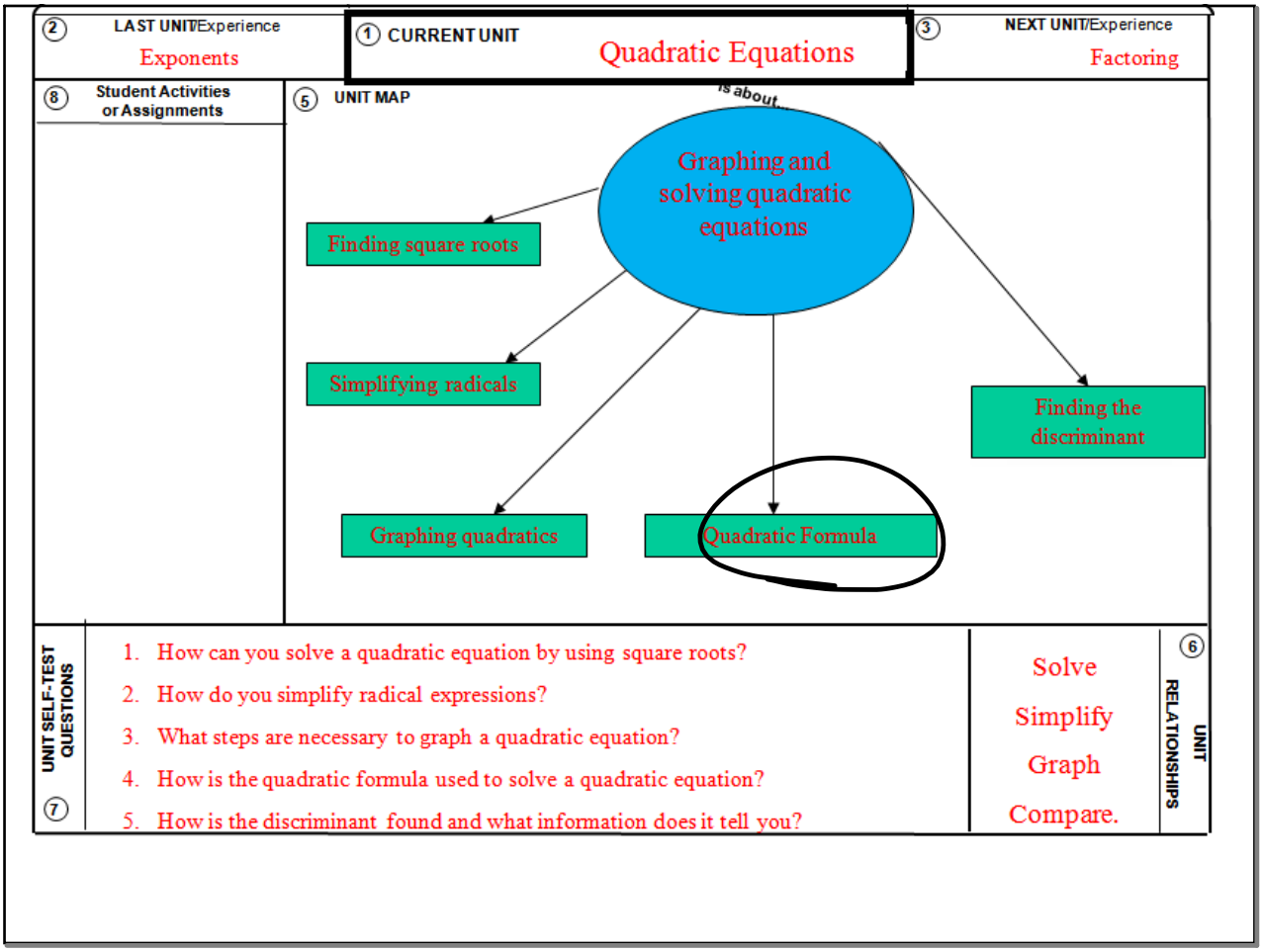
Goals:

- Use the quadratic formula to solve a quadratic equation.
- Use quadratic models for real-life situations.



EQ:

What is the quadratic formula?



THE QUADRATIC FORMULA

The solutions of the quadratic equation $ax^2 + bx + c = 0$ are

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$ when $a \neq 0$ and $b^2 - 4ac \geq 0$.

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

Example 1: Using the Quadratic Formula

Solve $x^2 + 8x + 15 = 0$ by using the quadratic formula.

$a=1, b=8, c=15$

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

$$x = \frac{-8 \pm \sqrt{8^2-4(1)(15)}}{2(1)}$$

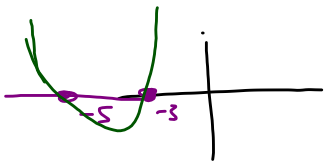
$$= \frac{-8 \pm \sqrt{64-60}}{2}$$

$$= \frac{-8 \pm \sqrt{4}}{2}$$

$$x = \frac{-8+2}{2} = \frac{-6}{2} = -3$$

$$x = \frac{-8-2}{2} = \frac{-10}{2} = -5$$

$x = -3$ and $x = -5$



Example 2: Writing in Standard Form

Solve $3x^2 - 7x = 11$.

Try It

Use the quadratic formula to solve the equation.

1) $x^2 + 4x - 5 = 0$

$a=1, b=4, c=-5$

$$x = \frac{-4 \pm \sqrt{4^2-4(1)(-5)}}{2(1)} = \frac{-4 \pm \sqrt{16+20}}{2} = \frac{-4 \pm \sqrt{36}}{2}$$

$$x = \frac{-4+6}{2} \qquad x = \frac{-4-6}{2}$$

$x = 1$ AND $x = -5$

2) $3x^2 - 8x = 9$

$y = x^2 + 5x - 4$

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

$a=1, b=5, c=-4$

$$x = \frac{-5 \pm \sqrt{(5)^2-4(1)(-4)}}{2(1)} = \frac{-5 \pm \sqrt{25+16}}{2} = \frac{-5 \pm \sqrt{41}}{2}$$

$$x = \frac{-5+\sqrt{41}}{2} \qquad x = \frac{-5-\sqrt{41}}{2}$$

$x \approx 0.70156\ldots$ $\qquad x \approx -5.70156\ldots$

$x = 0.70$ AND $x = -5.70$

Homework

9.6 p.536 #7-12, 40, 41

Example 3: Modeling Vertical Motion

Diving - A cliff diver jumps from a height of 58 feet above the water with an initial velocity of 5 feet per second. How long will it take the diver to reach the water?