Solve for the x-intercepts

$8x^2 - 4 = 4x$

$-4x \quad -4x$

$8x^2 - 4x - 4 = 0$ ☆

$a = 8, \; b = -4, \; c = -4$

$x = \frac{-b}{2a} = \frac{4}{2(8)} = \frac{4}{16}$

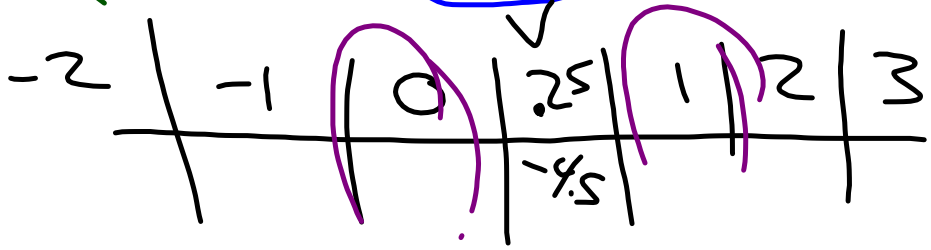
$x = \frac{1}{4}$

$y = 8(1/4)^2 - 4(1/4) - 4$

$y = 8(1/16) - 1 - 4$

$y = -4.5$

Vertex $(.25, -4.5)$



$x =$

$x =$

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.

9.4 Warm Up Multiple Choice Quiz

Quadratic Formula Song

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

https://youtu.be/O8ezDEk3qCg

Homework Questions?

40) $-6x^2-3x+2=0$

$a=-6, b=-3, c=2$

$$x=\frac{3\pm\sqrt{(-3)^2-4(-6)(2)}}{2(-6)}$$

$$=\frac{3\pm\sqrt{9+48}}{-12}$$

$$=\frac{3\pm\sqrt{57}}{-12}$$

$$x=\frac{3+\sqrt{57}}{-12}=-0.88$$

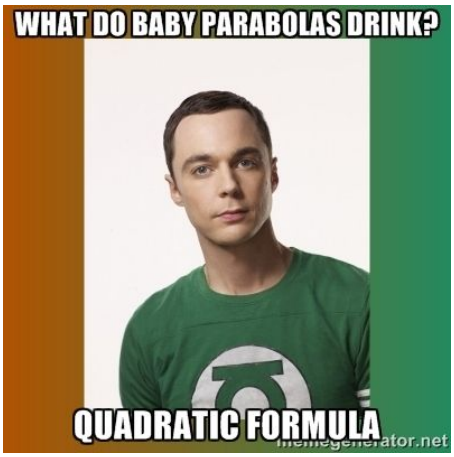
$$x=\frac{3-\sqrt{57}}{-12}=0.38$$

$x=-0.88$ AND $x=0.38$

9.5 Solving Quadratic Equations by the Quadratic Formula

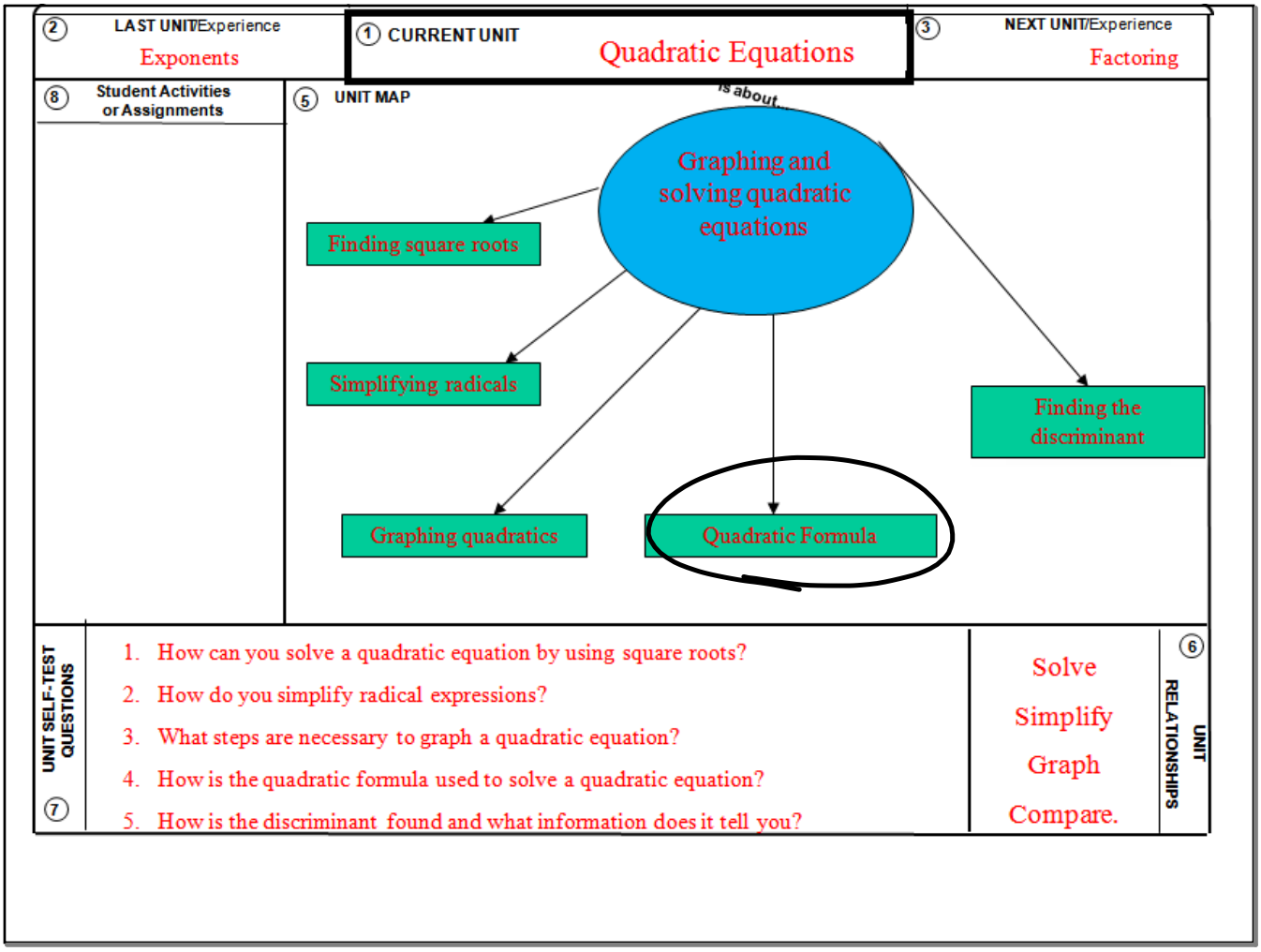
Goals:

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



EQ:

What is the quadratic formula?


2 LAST UNIT/Experience
Exponents
1 CURRENT UNIT
Quadratic Equations
3 NEXT UNIT/Experience
Factoring
8 Student Activities or Assignments
5 UNIT MAP
is about
Graphing and solving quadratic equations
Finding square roots
Simplifying radicals
Graphing quadratics
Quadratic Formula
Finding the discriminant
UNIT SELF-TEST QUESTIONS
7
1. How can you solve a quadratic equation by using square roots?
2. How do you simplify radical expressions?
3. What steps are necessary to graph a quadratic equation?
4. How is the quadratic formula used to solve a quadratic equation?
5. How is the discriminant found and what information does it tell you?
Solve
Simplify
Graph
Compare.
6
UNIT RELATIONSHIPS

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

$b^2 - 4ac \geq 0$.

$\sqrt{-3} \leftarrow$ no soh

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

Example 1: Using the Quadratic Formula

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

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

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

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

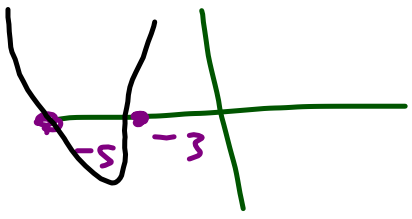
$$= \frac{-8 \pm \sqrt{64 - 60}}{2}$$

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

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

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

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



Example 2: Writing in Standard Form

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

$ax^2+bx+c=0$

$-11 \quad -11$

$3x^2-7x-11=0$

$a=3, b=-7, c=-11$

$$x=\frac{7\pm\sqrt{(-7)^2-4(3)(-11)}}{2(3)}=\frac{7\pm\sqrt{49+132}}{6}$$

$$x=\frac{7\pm\sqrt{181}}{6}$$

$x=\frac{7+\sqrt{181}}{6}$ $\quad$ $x=\frac{7-\sqrt{181}}{6}$

$x=3.4089....$ $\quad$ $x=-1.07556....$

$x\approx 3.41$ AND $x\approx -1.08$

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

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

$-9 \quad -9$

$3x^2 - 8x - 9 = 0$

$a = 3, b = -8, c = -9$

$$x = \frac{8 \pm \sqrt{(-8)^2 - 4(3)(-9)}}{2(3)} = \frac{8 \pm \sqrt{64 + 108}}{6}$$

$$= \frac{8 \pm \sqrt{172}}{6}$$

$$x = \frac{8 + \sqrt{172}}{6} \qquad x = \frac{8 - \sqrt{172}}{6}$$

$x = 3.52$ AND $x = -0.85$

Summary

EQ: What is the quadratic formula?

(without looking in your notes)

9.5 Homework

9.5 p.536 #32-42even,
44-50, 52-60even