

What's Going On?

Checking In

Minds on

What Type, How Many?

Action!

The Big Question

Consolidation

Summary

Learning Goal - I will be able to Graph Quadratic Functions by Factoring

Checking In

Test

Next Thursday

Yesterday was the last "new" topic for this unit.

We will spend the next 4 days
putting things together and reviewing.

Minds on

What Type? How Many?

Roots can be:

rational or irrational

$$x = 4, 2$$

$$x = 3, \frac{1}{2}$$

$$x = 0.\overline{56}, 7$$

$$x = \frac{-13}{371}, 0$$

$$x = \sqrt{2}, \sqrt{5}$$

$$x = 0.652419\dots$$

$$x = \frac{3 \pm \sqrt{7}}{2}$$

$$X = \frac{17.5}{3} \times 2 \times 2 \frac{35}{6} \quad \underline{\text{Rational}}$$

$$X = \frac{\sqrt{5}}{2} \times \sqrt{5} \frac{5}{2\sqrt{5}} \quad \underline{\text{Irrational}}$$

$$X = \frac{1}{\sqrt{121}} \Rightarrow \frac{1}{11} \quad \underline{\text{Rational}}$$

$$X = \frac{\sqrt{361}}{7} \Rightarrow \frac{19}{7}$$

$$\begin{aligned}x &= \frac{\sqrt{425}}{\sqrt{17}} \\&= \sqrt{\frac{425}{17}} \\&= \sqrt{25} \\&= 5\end{aligned}$$

$$\frac{\sqrt{a}}{\sqrt{b}} = \sqrt{\frac{a}{b}}$$

Minds on

What Type? How Many?

Roots can be:

real or non-real

$$x = 2, \frac{1}{2}$$

$$x = 4, 8$$

$$x = \frac{1}{2}$$

$$x = \sqrt{5}, -\frac{\sqrt{3}}{5}$$

$$x = \sqrt{-8}, \sqrt{-1}$$

$$x = \frac{3 \pm \sqrt{-2}}{4}$$

Minds on

What Type? How Many?

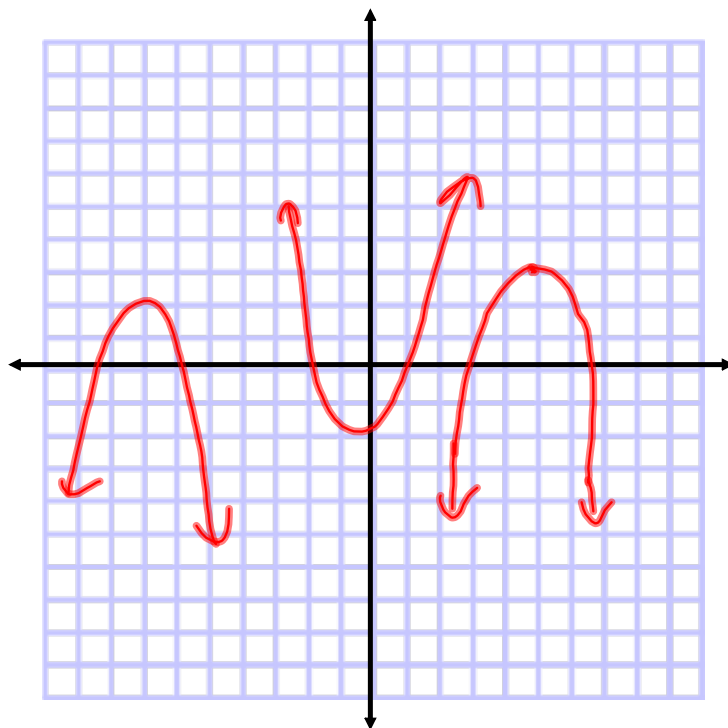
We can have:

→ different/unique
two distinct roots

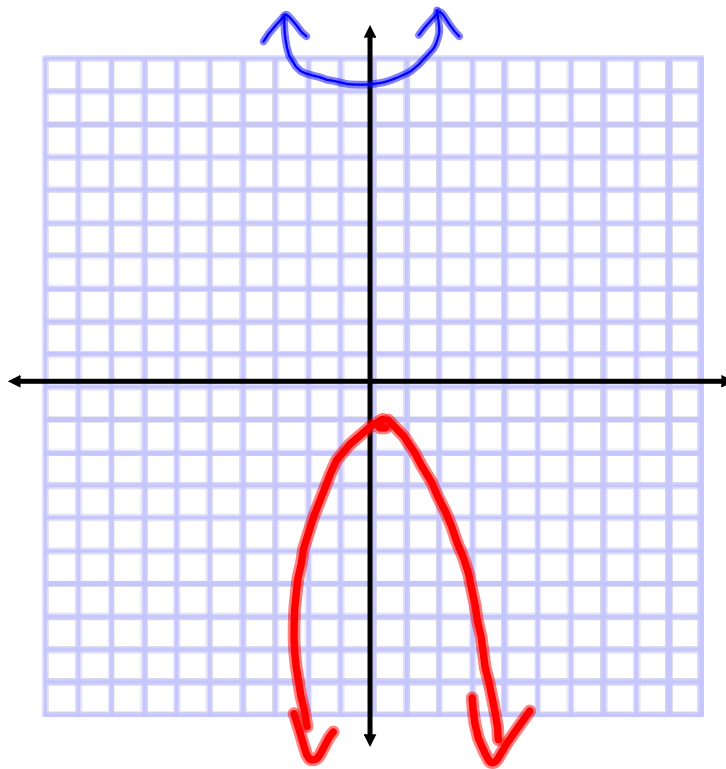
no "real" roots

→ double root
two equal roots

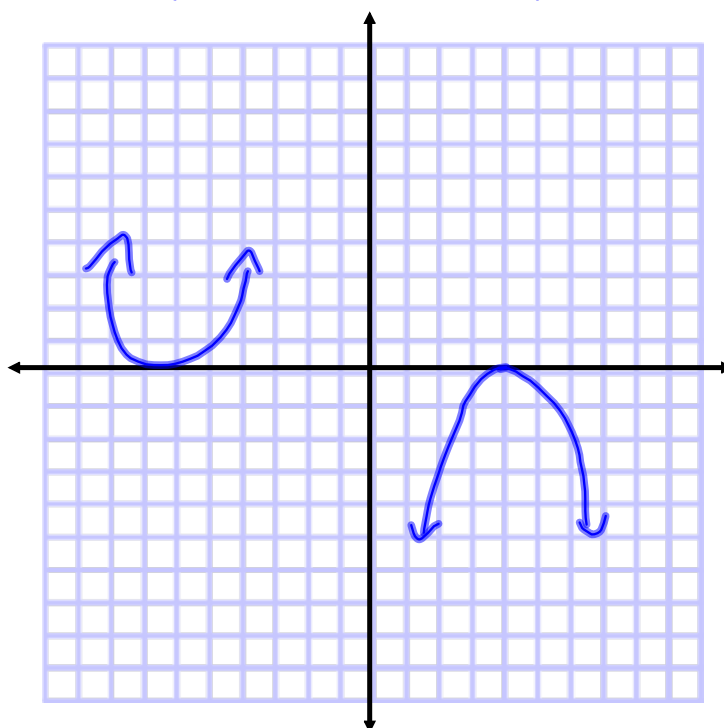
Two Distinct Roots



No "Real" Roots



Two Equal Roots (Double Root)



Action!

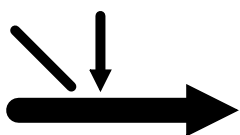
The Big Question

How can we discriminate between quadratics with two distinct roots, two equal roots and no real roots using The Quadratic Formula?

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

<u>two distinct roots</u>	<u>two equal roots</u>	<u>no real roots</u>
The "number" under the square root is positive.	The "number" under the square root sign is 0.	The "number" under the square root sign is negative.

Minds on



The Big Question

How can we discriminate between quadratics with two distinct roots, two equal roots and no equal roots using The Quadratic Formula?

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

discriminate \xrightarrow{n} $b^2 - 4ac$

Action!

The Big Question

How can we discriminate between quadratics with two distinct roots, two equal roots and no real roots using The Quadratic Formula?

We use the discriminant

$$b^2 - 4ac$$

Homework

**Come to school on Monday
caught up!!!**