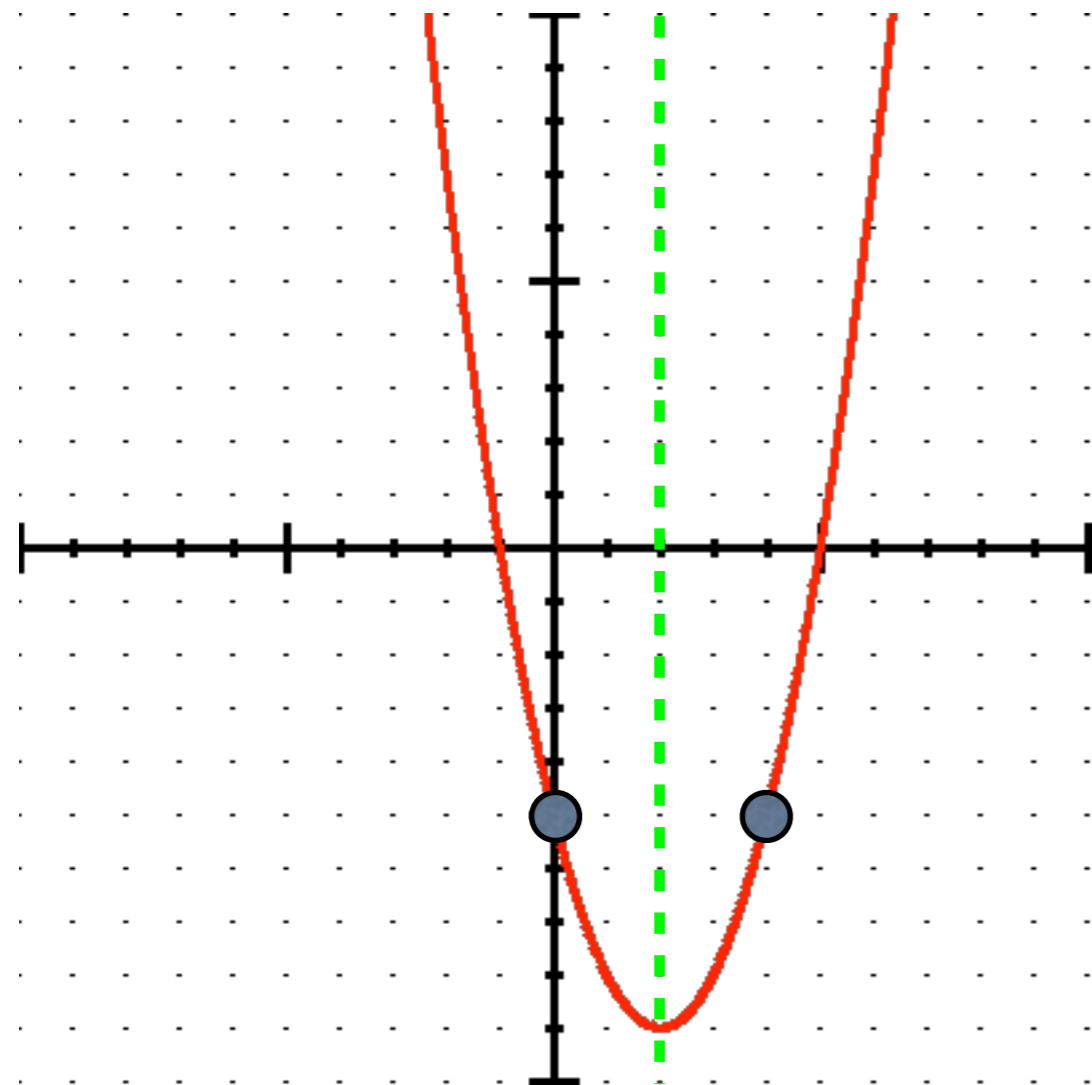


Quick Unit 10 Recap

A Fahrenbacher Production

Graphing Quadratics



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

- Equation: $y = ax^2 + bx + c$
- Axis of Symmetry: $x = \frac{-b}{2a}$
- Y-intercept: c-value
- Graph by making a table and using symmetry

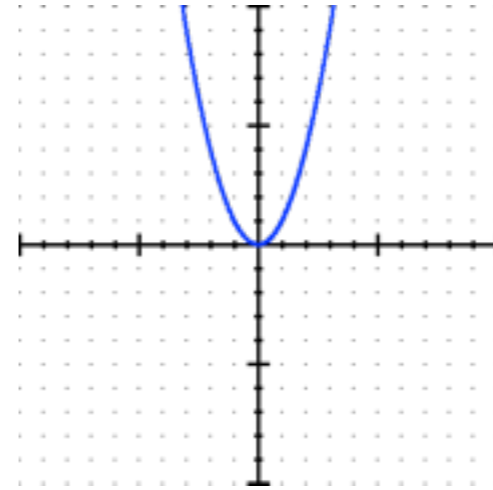
x	2	3	4
y	-9	-8	-5

$$y = (2)^2 - 4(2) - 5 = 4 - 8 - 5 = -9$$

Quadratic Shape

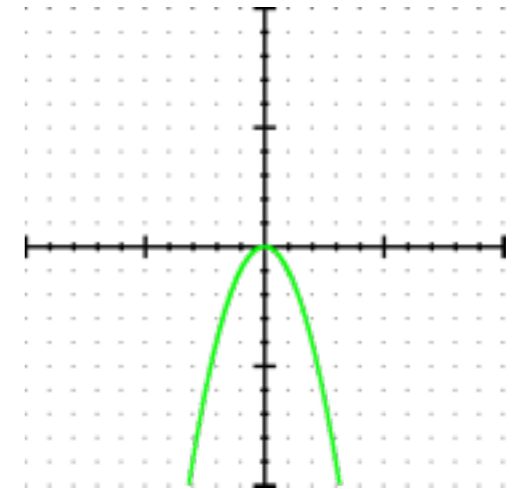
$a > 0$

Face up



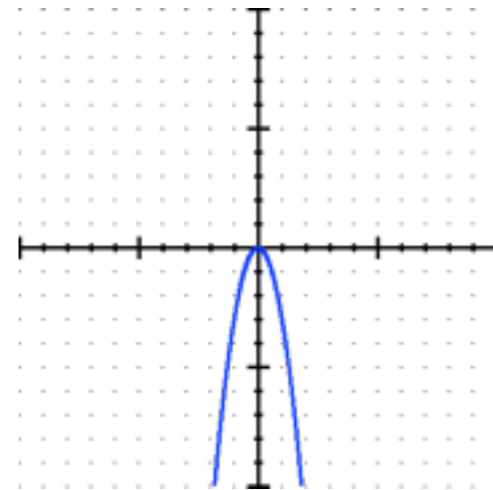
$a < 0$

Face Down



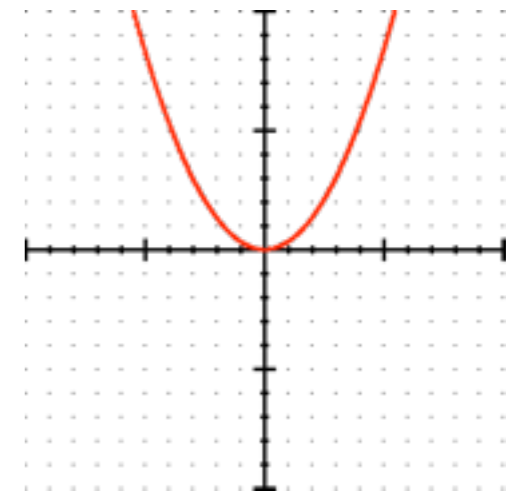
$|a| > 1$

Taller (Skinny)



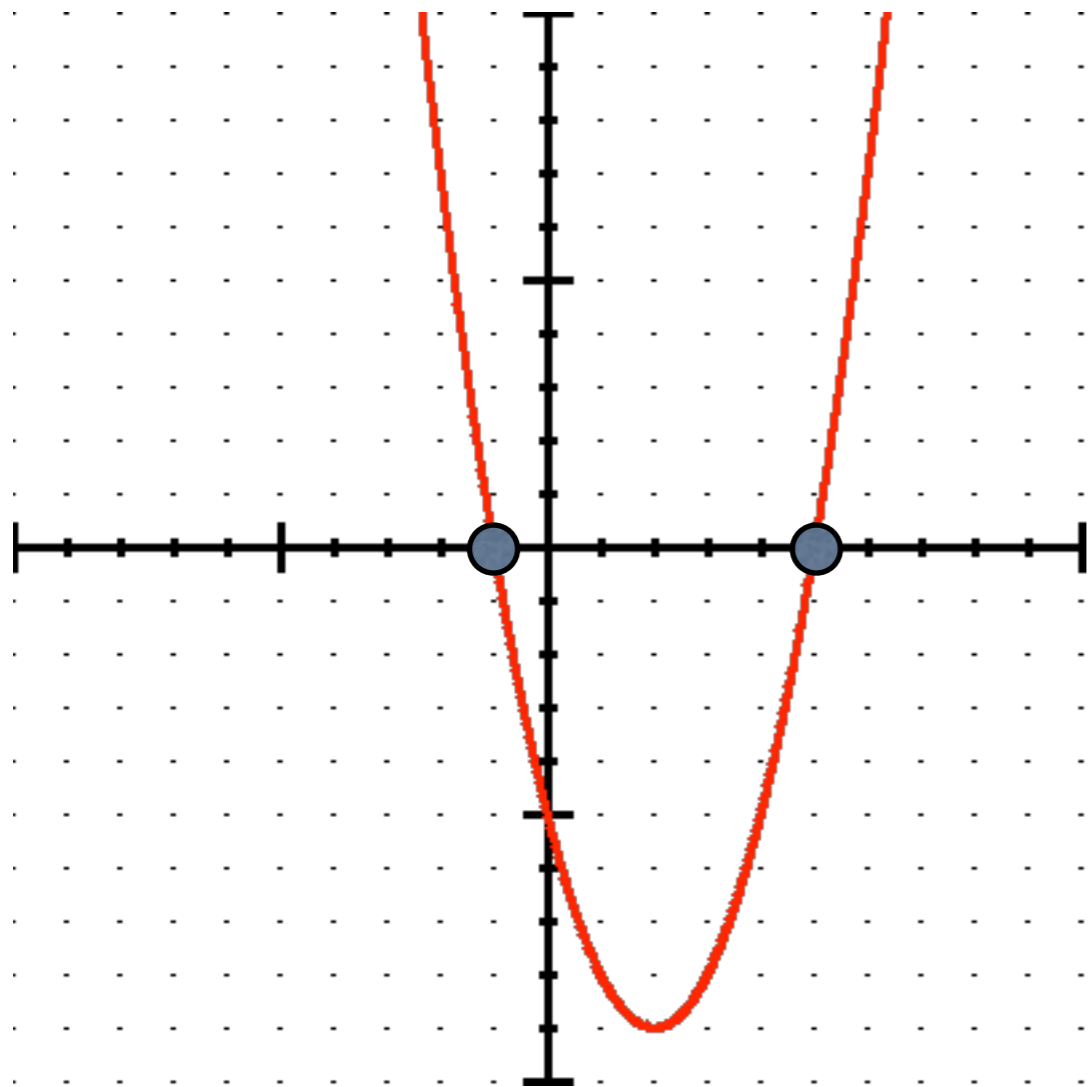
$|a| < 1$

Shorter (Fat)



Solve Graphically

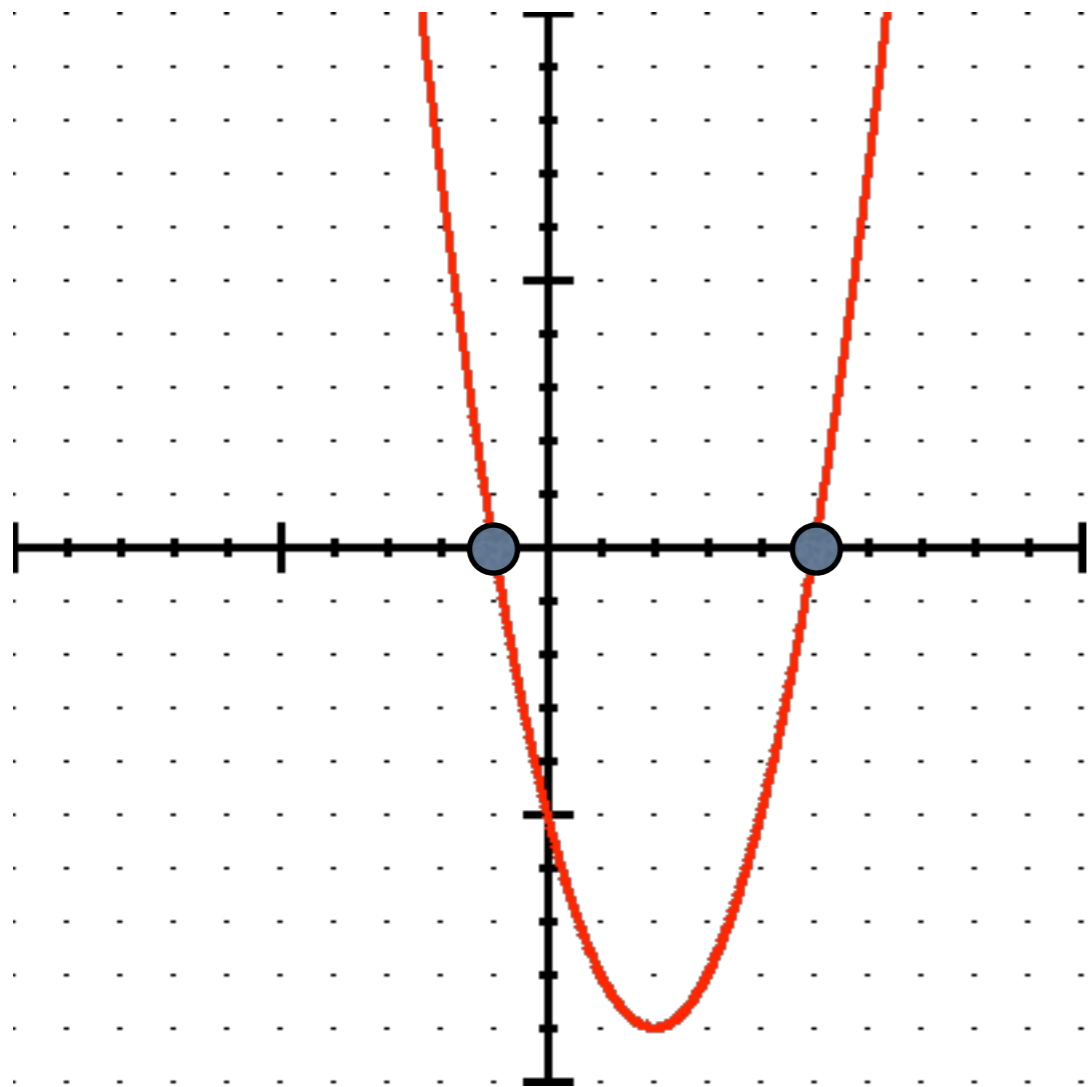
$$5 = x^2 - 4x$$



- Write equation in standard form: $0 = x^2 - 4x - 5$
- Graph
- Find the x-intercepts (called the zeros)

Solve Graphically (Calc)

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



[Video Explanation](#)

- Write equation in standard form: $0 = x^2 - 4x - 5$
- Enter equation to Y=
- Graph in an appropriate Window
- Press 2nd Calc and use Zero finder
- Follow on screen instructions...

Solve by Undo

- Only use with **ONE** x-term!
- When square rooting both sides, remember the \pm **immediately!**
- When square rooting a....
 - positive, you get 2 solutions $x^2 = 9 \rightarrow x = \pm 3$
 - zero, you get 1 solution $x^2 = 0 \rightarrow x = 0$
 - negative, you get 0 solutions $x^2 = -4 \rightarrow \textit{No Solutions}$

Simplifying Radicals

- Find the biggest perfect square divisor (25) $\sqrt{50}$
- Split up the radical $\sqrt{25 \cdot 2}$
- Simplify $5\sqrt{2}$
- Radicals can only be added or subtracted if they have the same number within the root symbol!

$$\sqrt{12} + \sqrt{27} \neq \sqrt{39}$$

$$\sqrt{12} + \sqrt{27} = 2\sqrt{3} + 3\sqrt{3} = 5\sqrt{3}$$

Solve By Undo + Simplify

- Always make sure you right your answers in simplest form!

$$(x + 3)^2 = 25$$

$$x + 3 = \pm 5$$

$$\boxed{x = -3 \pm 5}$$

or

$$x + 3 = 5 \quad x + 3 = -5$$

$$\boxed{x = 2, x = -8}$$

$$(x - 2)^2 = 20$$

$$x - 2 = \pm \sqrt{20}$$

$$x - 2 = \pm 2\sqrt{5}$$

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

Make sure
you simplify
the radical!