Algebra 1 9.2

Solve quadratic equations by graphing

Estimate quadratic solutions by graphing

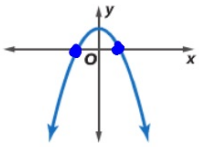
x- intercept(s) = 0

y =

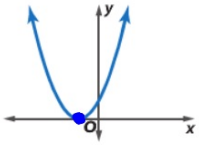
Solution
Root
x-intercept
Double root
standard form
equation
related function

Whiteboards
Matching activity (if time)

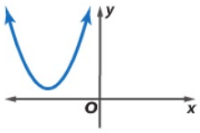
KeyConcept Solutions of Quadratic Equations



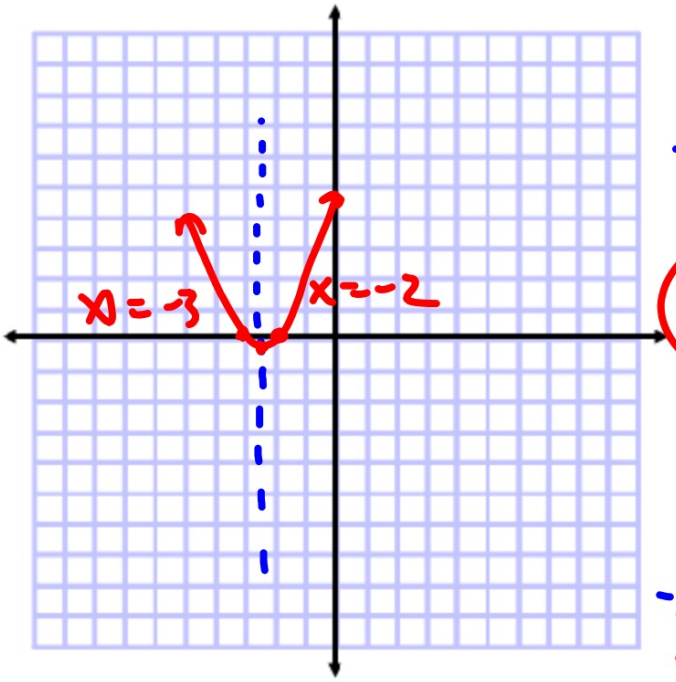
two unique real solutions



one unique real solution



no real solutions



Solve by graphing: Where does the graph cross the x-axis?
x-intercept(s)

1. Rearrange as necessary (= 0)
2. Graph the related function
3. Answer the question

$\frac{-b}{2a}$

$\frac{-5}{2}$

$x^2 + 5x + 6 = 0$

$y = x^2 + 5x + 6$

	$x \cdot x + 5 \cdot x$	
-2.5	$6.25 + 72.5 + 6$	-0.25
-2	$4 + -10 + 6$	0
-3	$-9 + -15 + 6$	0

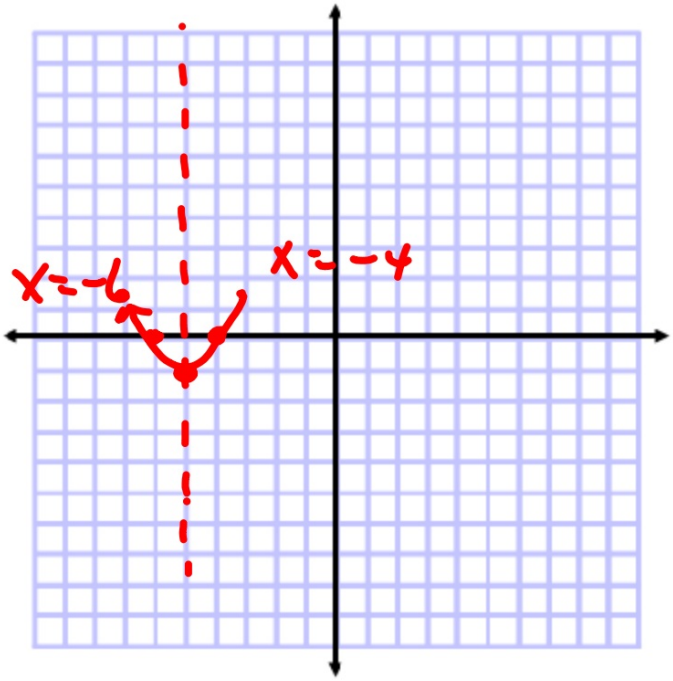
$\frac{-b}{2a}$ $\frac{-10}{2} = -5$

Solve by graphing

$x^2 + 10x + 24 = 0$

$y = 1x^2 + 10x + 24$

	$x \cdot x + 10 \cdot x + 24$	
-5	$25 + -50 + 24$	-1
-4	$16 + -40 + 24$	0
-6	$36 + -60 + 24$	0



$x = \frac{16}{2} = 8$

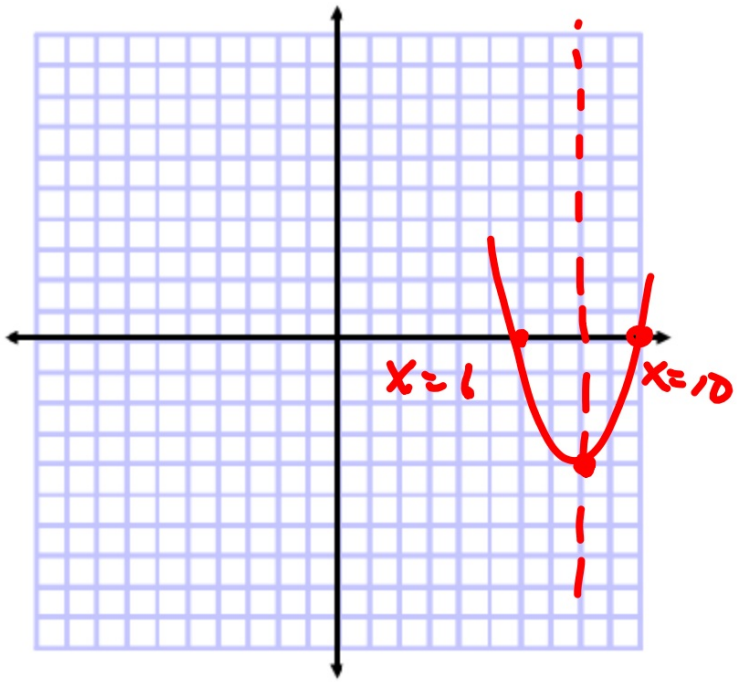
$x^2 - 16x = -60$

$+60 \quad +60$

$x^2 - 16x + 60 = 0$

$y = x^2 - 16x + 60$

8	$64 - 128 + 60$	-4
10	$100 - 160 + 60$	0
6	$36 - 96 + 60$	0



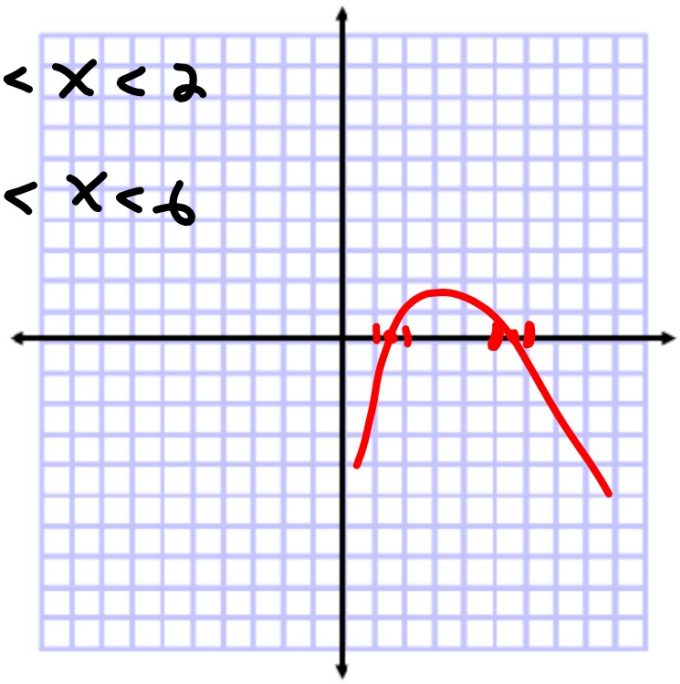
Matching activity:
Find the person who has the match for your card.

Solve each equation by graphing.

3A. $-x^2 - 3x = 5$

Between 1 & 2 $1 < x < 2$

Between 5 & 6 $5 < x < 6$



9.2 prac. p.122
(p.120) 1-6

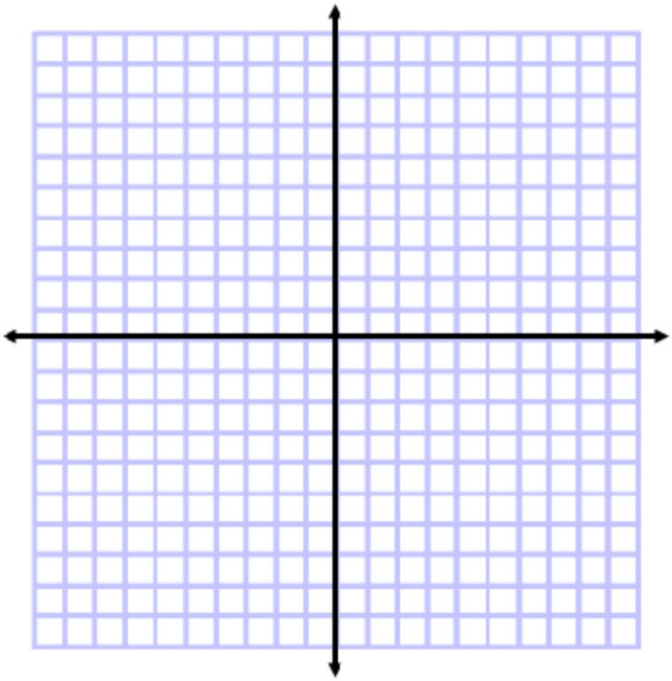
1) $x^2 - 5x + 6 = 0$

Example 4 Approximate Roots with a Table

Solve $x^2 + 6x + 6 = 0$ by graphing. If integral roots cannot be found, estimate the roots to the nearest tenth.

$< x <$

If they are not integers… what are they between? (change in instructions)



GuidedPractice

4. Solve $2x^2 + 6x - 3 = 0$ by graphing. If integral roots cannot be found, estimate the roots to the nearest tenth.