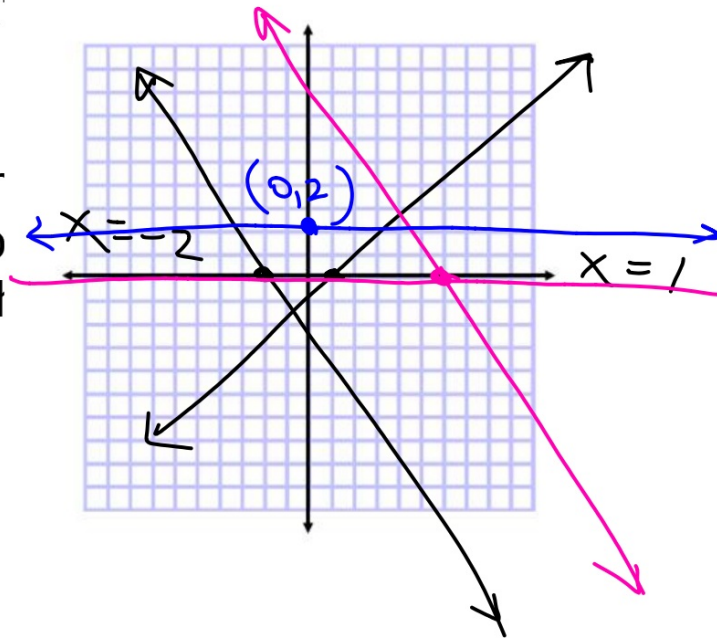Algebra 1   3.2

Solve linear eq

Estimate solut

graphing

⭐ linear function

parent functio

family of graph

x-intercept

$(0, 2)$

$x = -2$

$x = 1$

Graphing practice

$y = 2x + 3$

	$2x + 3$	
2	$2\cdot2 + 3$	7
-1	$2\cdot-1 + 3$	1
0	$2\cdot0 + 3$	3
1	$2\cdot1 + 3$	5

$y = 2x + 3$ $(0, 3)$

$y = 2\cdot0 + 3$
$0 + 3$

$(-1.5, 0)$

$0 = 2x + 3$
$-3 \quad\quad -3$

$\dfrac{-3}{2} = \dfrac{2x}{2}$

$-1.5 = x$

$\boxed{x = -1.5}$

$x = 8$
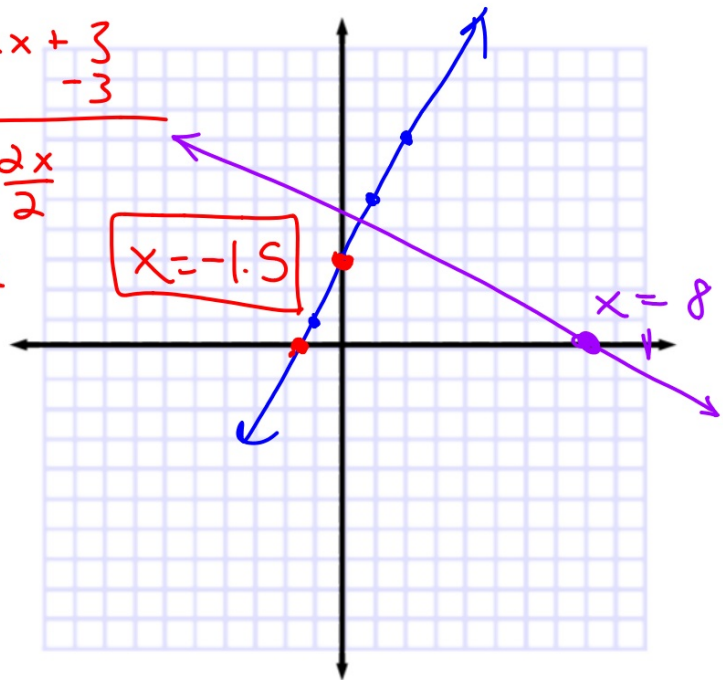
$y = x$

KeyConcept Linear Function

Parent function:	$f(x) = x$
Type of graph:	line
Domain:	all real numbers
Range:	all real numbers
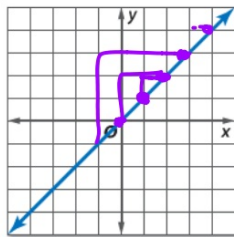
$$\frac{1}{1} = 1$$

$$\frac{2}{2}$$

Linear Equation	Related Function
$2x - 8 = 0$	$y = 2x - 8$

graph

$2 \cdot 4 - 8 = 0$
$8 - 8 = 0$

Solve by graphing

	$2x - 8$	
2	$2 \cdot 2 + ^-8$	$^-4$
0	$2 \cdot 0 + ^-8$	-8
$^-1$	$2 \cdot ^-1 + ^-8$	$^-10$
3	$2 \cdot 3 + ^-8$	-2

$y = 2x - 8$

$x = 4$
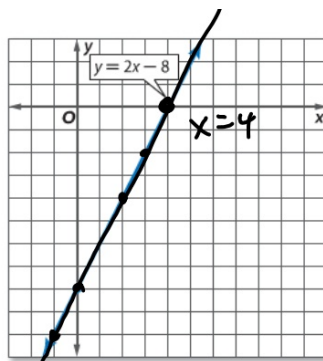
1. graph related function (may need to rearrange first)
TOV or x&y intercepts
2. solution is x-intercept
   ...OR...
3. Solve the equation using
algebra
(depends on directions)

b. $3x + 1 = -2$
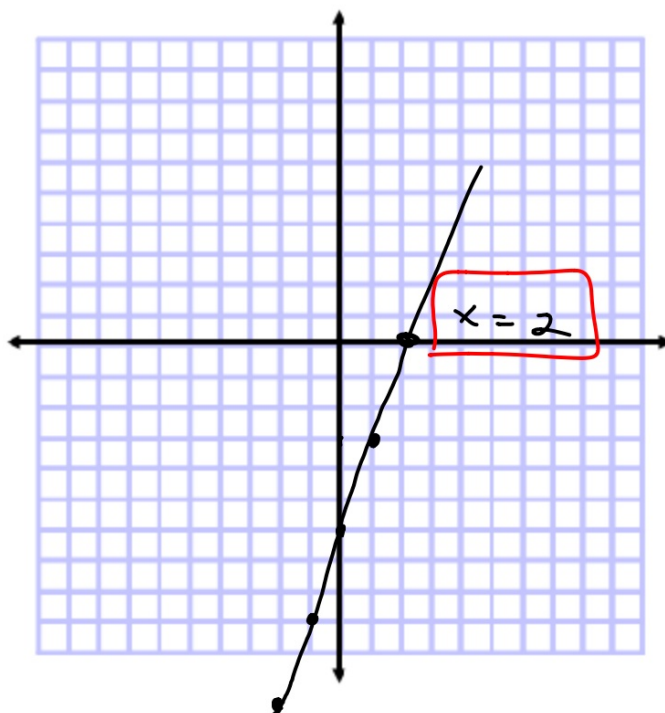
Method 2 Solve by graphing.

Solve by graphing:
1. graph related function
2. solution is x-intercept

$0 = 3x - 6$
$0 = 3 \cdot 2 - 6$ 11)
$0 = 6 - 6$

$y = 3x - 6$

x	3x-6	
	-6=6	
-2	3·-2-6	-12
-1	3·-1-6	-9
0	3·0-6	-6
1	3·1-6	-3

$x = 2$

$0.5(-6)+3=0$

$-3+3=0$

0.5 x + 3 = 0

$y = 0.5x + 3$

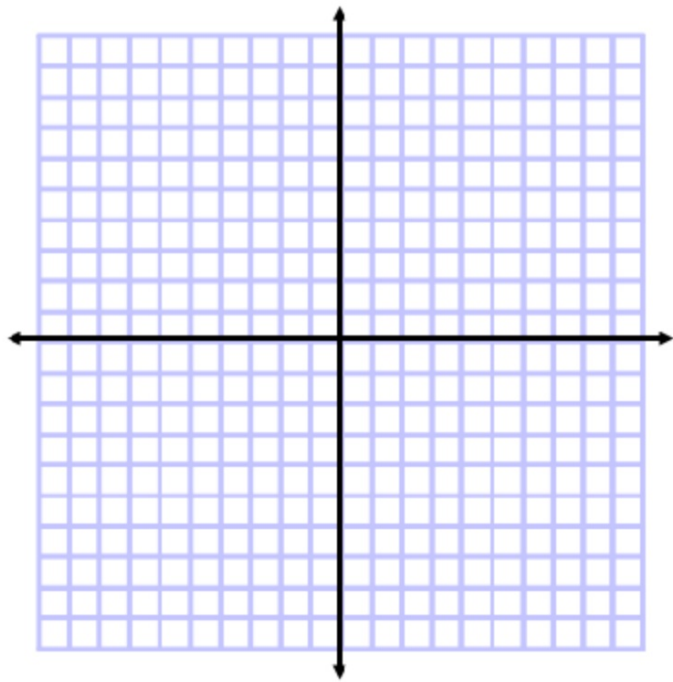|		
-2	$0.5(-2)+3$	2
-1	$0.5(-1)+3$	2.5
0	$0.5(0)+3$	3
4	$0.5(4)+3$	5
1	$0.5(1)+3$	3.5

$x = -6$
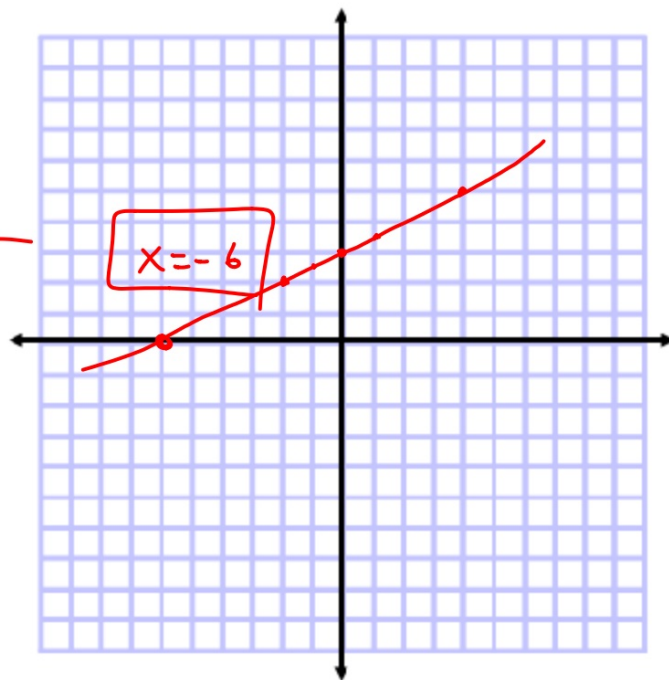
Example 2 Solve an Equation with No Solution

Solve each equation.

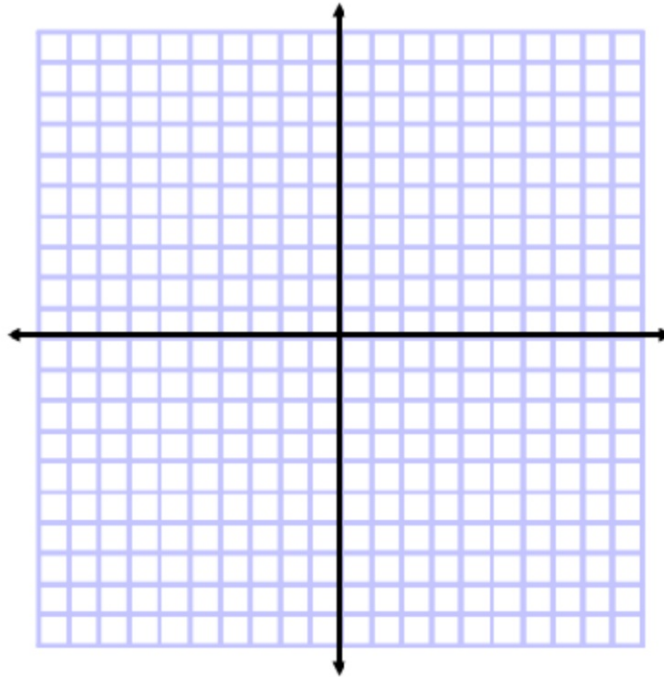a. $3x + 7 = 3x + 1$

y=

y=

Solve using algebra
Solve by graphing

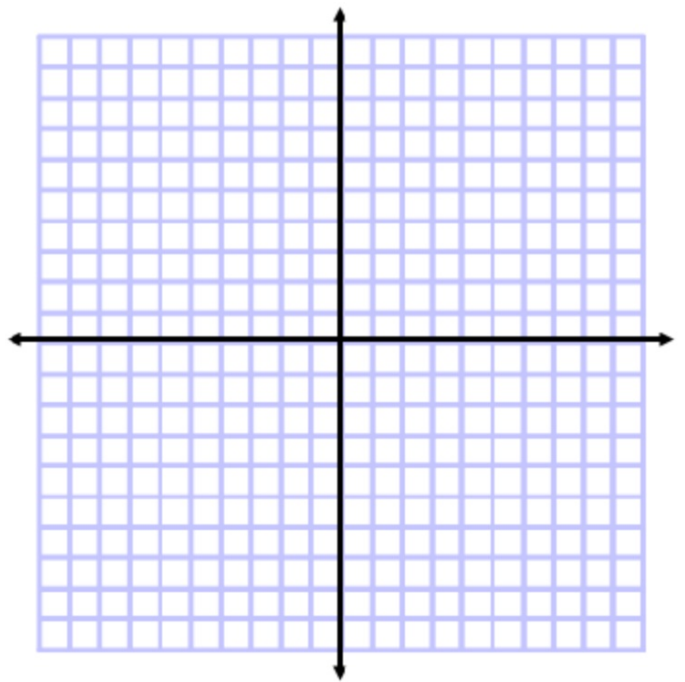Same answer!

b. $2x - 4 = 2x - 6$

Solve by graphing.

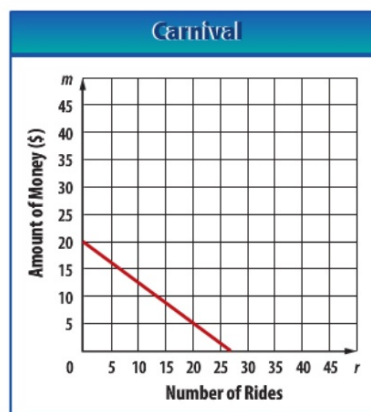y=

y=

2A. $4x + 3 = 4x - 5$

2B. $2 - 3x = 6 - 3x$

Why don't these systems have a solution?

Find the zero means
what is the x-intercept? (where y = 0)

CARNIVAL RIDES Emily is going to a local carnival. The function $m = 20 - 0.75r$ represents the amount of money m she has left after r rides. Find the zero of this function. Describe what this value means in this context.

Carnival

3. **FINANCIAL LITERACY** Antoine's class is selling candy to raise money for a class trip. They paid $45 for the candy, and they are selling each candy bar for $1.50. The function $y = 1.50x - 45$ represents their profit y when they sell x candy bars. Find the zero and describe what it means in the context of this situation.

Where is y-coord = 0?