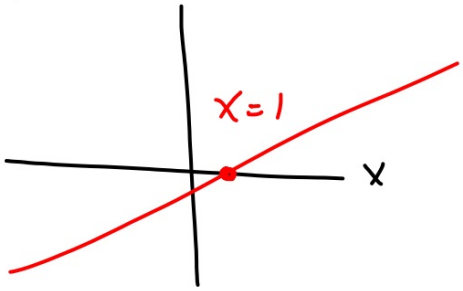
Algebra 1 3.2

Solve linear equations by graphing

Estimate solutions to a linear equation by graphing x-intercept

linear function
parent function
family of graphs
x-intercept

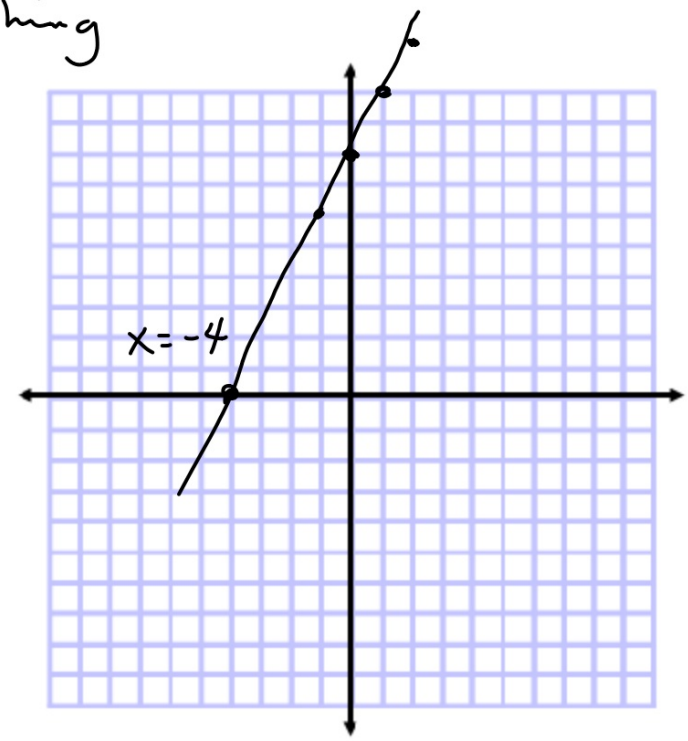


Solve by graphing

$2x+8=0$? $2\cdot -4+8=0$ ✓

$y = 2x + 8$

x		
1	$2\cdot 1 + 8$	10
0	$2\cdot 0 + 8$	8
-1	$2\cdot -1 + 8$	6
5	$2\cdot 5 + 8$	18
2	$2\cdot 2 + 8$	12



Example 2 Solve an Equation with No Solution

Solve each equation.

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

$y = 3x + 7$

$y = 3x + 1$

$y = 3x + 7$

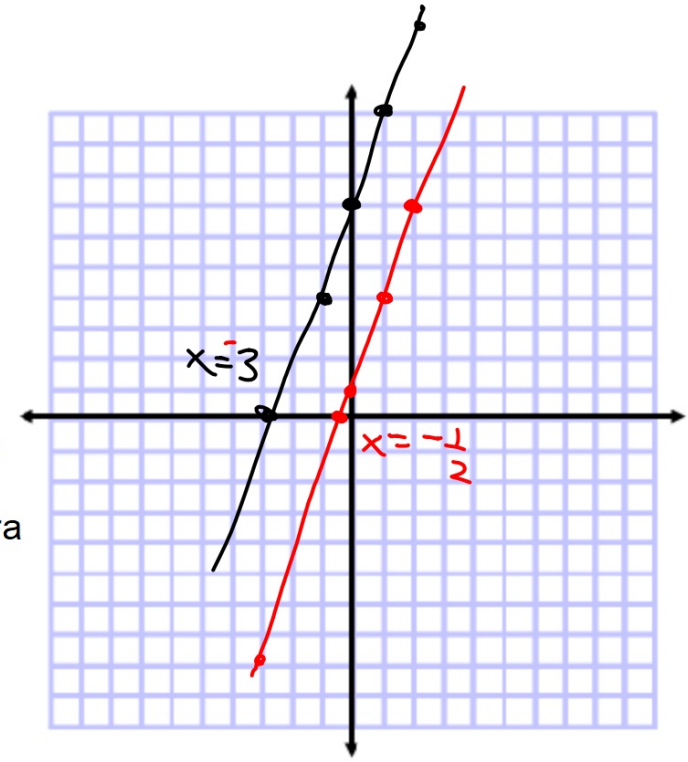
1	$3 \cdot 1 + 7$	10
0	$3 \cdot 0 + 7$	7
−1	$3 \cdot -1 + 7$	4
2	$3 \cdot 2 + 7$	13

$y = 3x + 1$

1	$3 \cdot 1 + 1$	4
2	$3 \cdot 2 + 1$	7
0	$3 \cdot 0 + 1$	1
−3	$3 \cdot -3 + 1$	−8

Solve using algebra
Solve by graphing

Same answer!



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

$-2x \quad -2x$

$-4 = -6$ NS

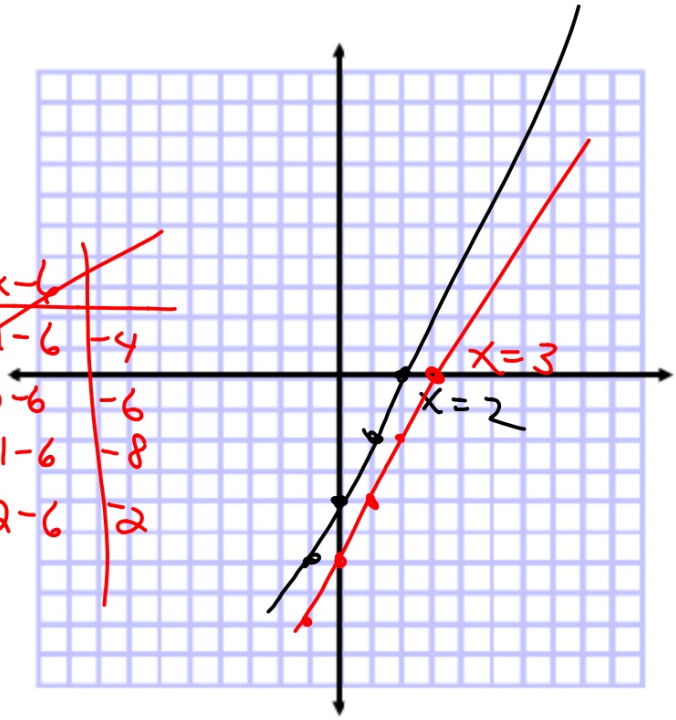
Method 2 Solve by graphing.

$y = 2x - 4$

$y = 2x - 6$

x	2x−4	
1	2·1−4	−2
0	2·0−4	−4
−1	2·−1−4	−6
2	2·2−4	0

x	2x−6	
1	2·1−6	−4
0	2·0−6	−6
−1	2·−1−6	−8
2	2·2−6	−2



GuidedPractice

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

$-4x \quad -4x$

$3 = -5$

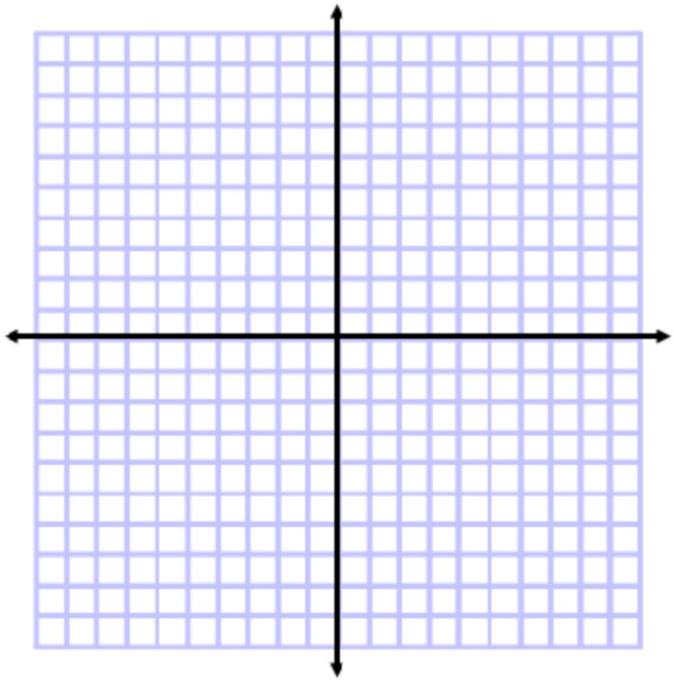
NS

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

$+3x \quad +3x$

$2 = 6$

NS



Why don't these systems have a solution?

$= 0$

$2x - 5 = 9$

$-9 \quad -9$

$2x - 14 = 0$

$y = 2x - 14$

$3x + 5 = 14$

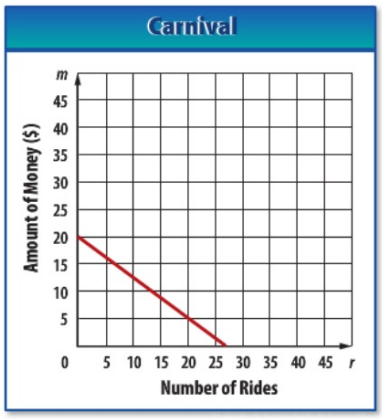
$-14 \quad -14$

$3x - 9 = 0$

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

Real-World Example 3 Estimate by Graphing

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.



GuidedPractice

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.