Warm Up

Graphing Stories

watch video - label y-axis and draw graph

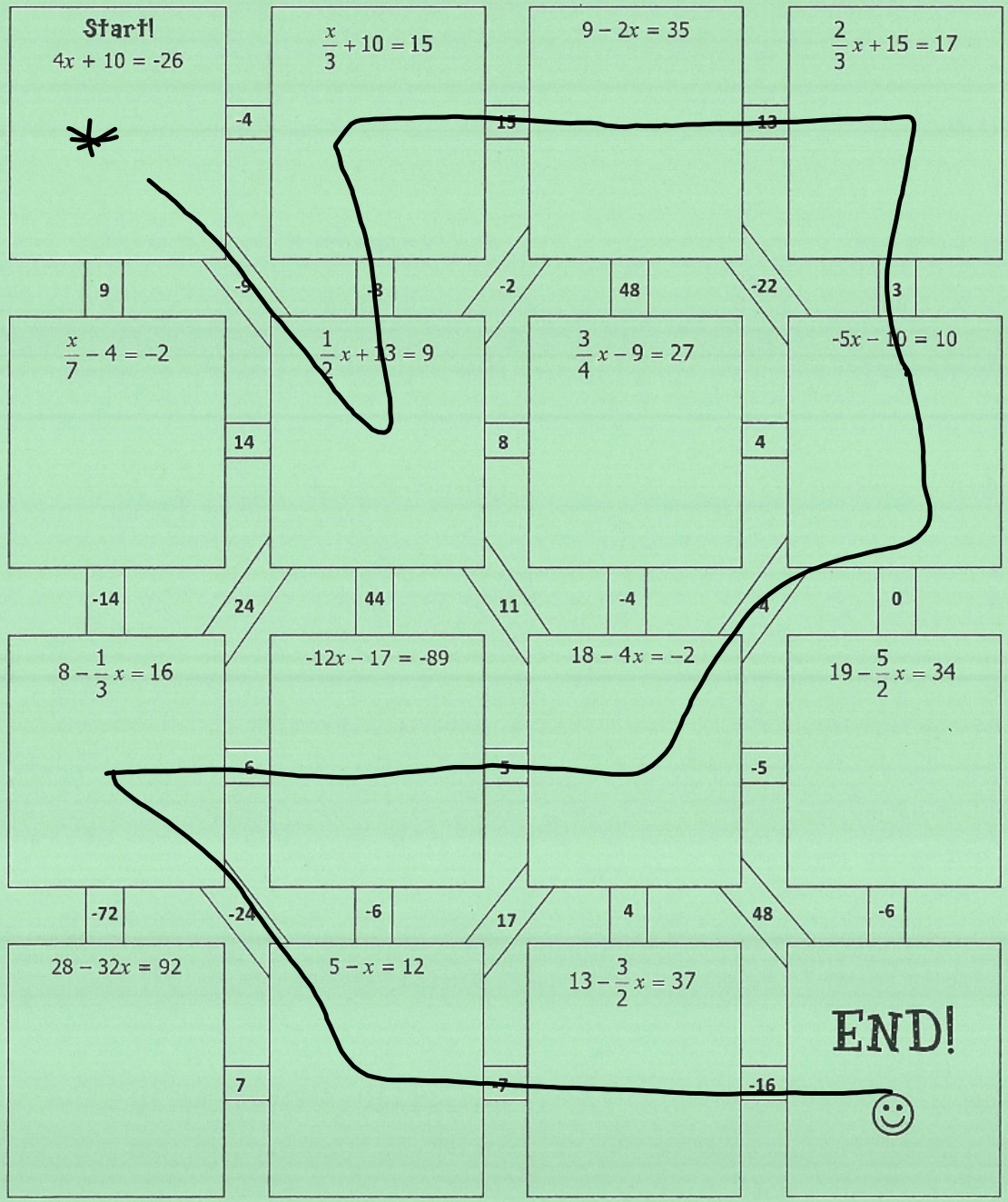
discuss domain and range

discuss increasing and decreasing

slide balloon home plate height

Two-Step Equation Maze!

Directions: Use your solutions to navigate through the puzzle. **SHOW ALL STEPS!!!!**



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Equation Review

+2

Name_____

Date_____ Period____

1) $-20 = -4x - 6x$

2) $6 = 1 - 2n + 5$

+1 3) $8x - 2 = -9 + 7x$

$x = -7$

4) $a + 5 = -5a + 5$

+1 5) $4m - 4 = 4m$

No sol

6) $p - 1 = 5p + 3p - 8$

7) $5p - 14 = 8p + 4$

8) $p - 4 = -9 + p$

9) $-8 = -(x + 4)$

+1 10) $12 = -4(-6x - 3)$

$x = 0$

+1 11) $14 = -(p - 8)$

$p = -6$

12) $-(7 - 4x) = 9$

+1 13) $-18 - 6k = 6(1 + 3k)$

$k = -1$

14) $5n + 34 = -2(1 - 7n)$

+1 15) $2(4x - 3) - 8 = 4 + 2x$

$x = 3$

16) $3n - 5 = -8(6 + 5n)$

$n = -1$

+1 17) $-(1 + 7x) - 6(-7 - x) = 36$

$x = 5$

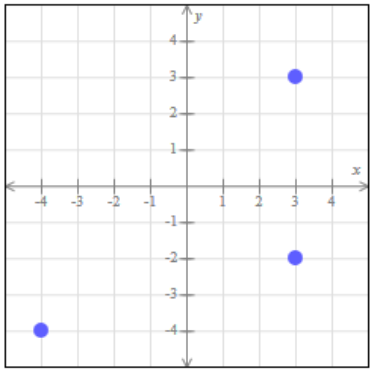
18) $-3(4x + 3) + 4(6x + 1) = 43$

19) $24a - 22 = -4(1 - 6a)$

20) $-5(1 - 5x) + 5(-8x - 2) = -4x - 8x$

State the domain and range of each relation

1.



D 3,3,-4

R 3,-2,-4

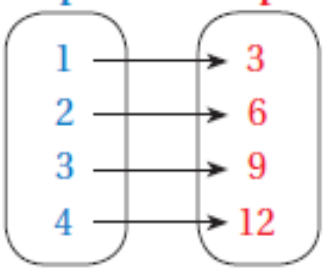
2. { (2,3), (-4,2), (9,-1), (0-5) }

D: 2, -4, 9, 0

R: 3, 2, -1, -5

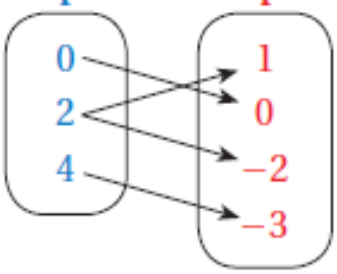
Function or no?

a.



Yes!

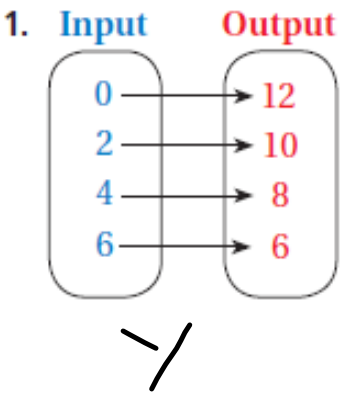
b.



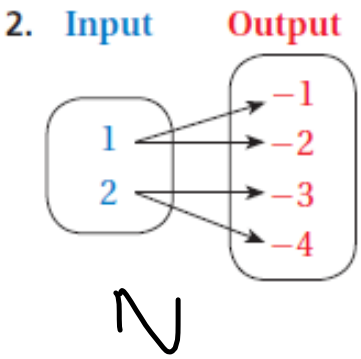
No!

Function or no?

List the ordered pairs shown in the mapping diagram.

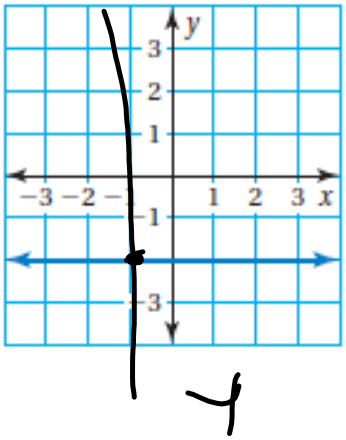
1. 

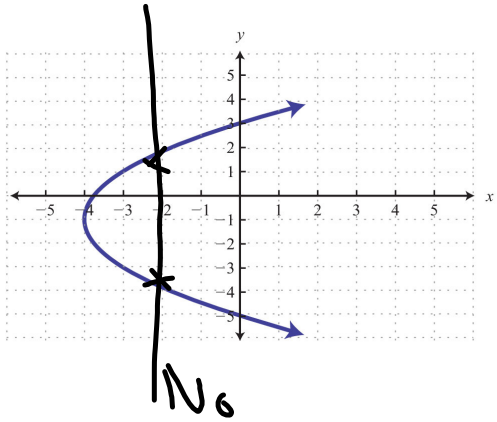
Y

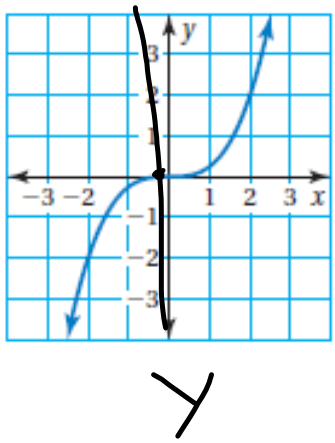
2. 

N

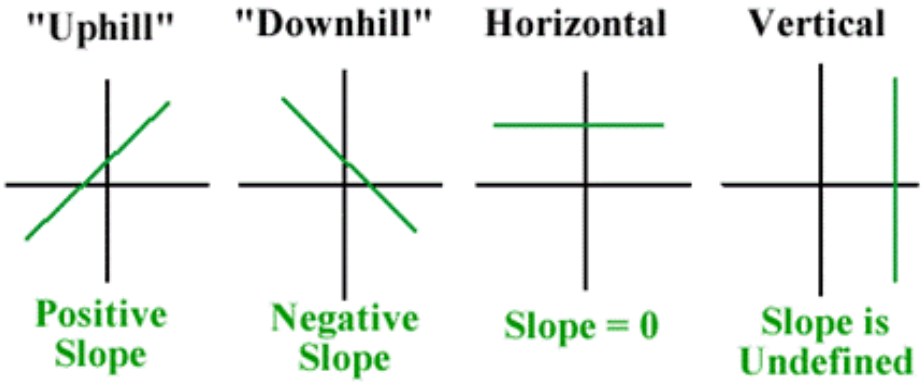
Function or no?



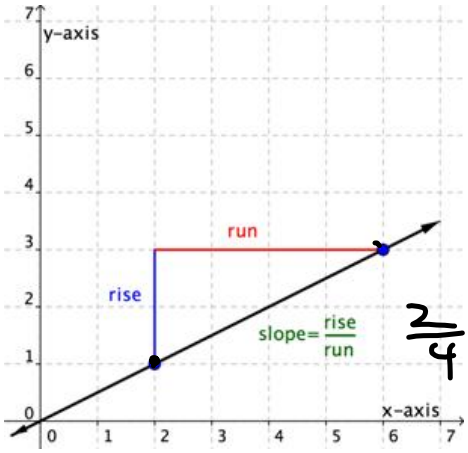




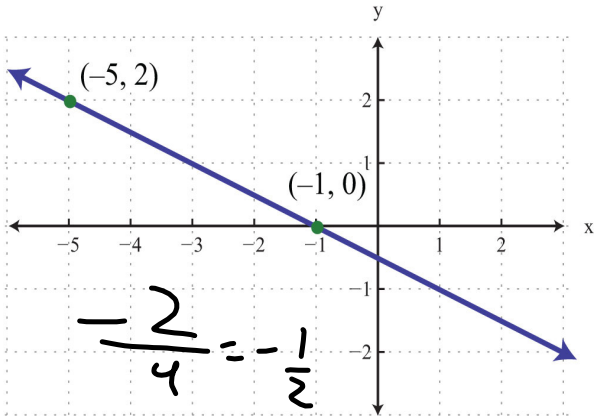
Slope


"Uphill"
"Downhill"
Horizontal
Vertical
Positive Slope
Negative Slope
Slope = 0
Slope is Undefined

Slope



$\frac{2}{4} = \frac{1}{2}$



$\frac{-2}{4} = -\frac{1}{2}$

Slope

The points in the table lie on a line. Find the slope of the line.

x	−3	−2	−1	0
y	6	4	2	0

-2

$m = \frac{-2}{1}$

The points in the table lie on a line. Find the slope of the line.

x	−1	0	1	2
y	−3	−1	1	3

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

Slope

$$\text{slope} = \frac{y_2 - y_1}{x_2 - x_1}$$

(0,4) and (6,1)

$$\frac{1-4}{6-0} = \frac{-3}{6} = -\frac{1}{2}$$

(-3,6) and (-1,-5)

$$\frac{-5-6}{-1+3} = -\frac{11}{2}$$

Which of the following are linear?

1.

x	0	1	2	3
y	6	4	2	0

Y!

2.

x	0	1	2	3
y	3	5	8	12

+2 +3 +4

N!

3.

x	0	1	2	3
y	15	25	20	30

N!

4.

x	0	1	2	3
y	–7	–2	3	8

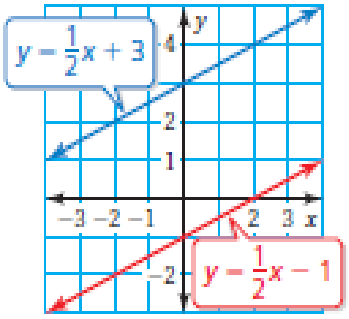
Y!

Key Idea

Parallel Lines and Slopes

Lines in the same plane that do not intersect are parallel lines. Nonvertical parallel lines have the same slope.

All vertical lines are parallel.

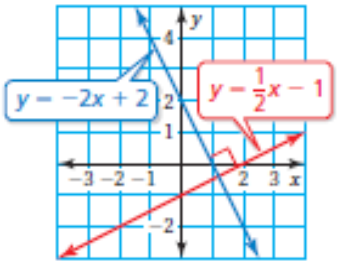


Key Idea

Perpendicular Lines and Slope

Lines in the same plane that intersect at right angles are perpendicular lines. Two nonvertical lines are perpendicular when the product of their slopes is -1.

Vertical lines are perpendicular to horizontal lines.

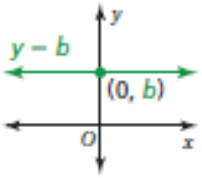


$\frac{2}{3} \rightarrow -\frac{3}{2}$

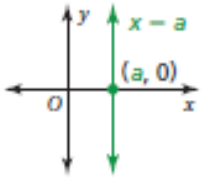
Key Idea

Graphing Horizontal and Vertical Lines

The graph of $y = b$ is a horizontal line passing through $(0, b)$.

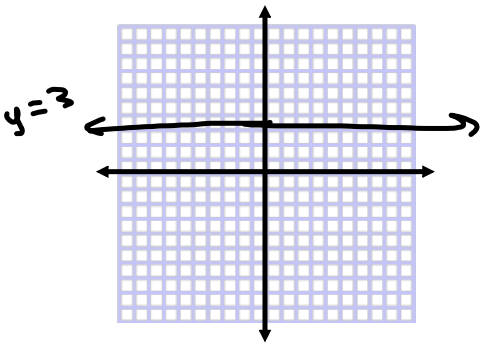


The graph of $x = a$ is a vertical line passing through $(a, 0)$.



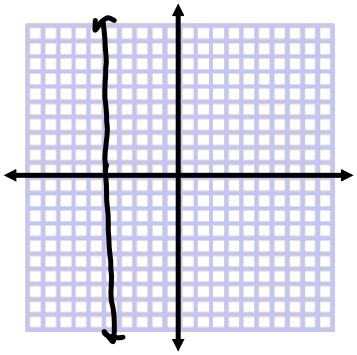
HỌY

y = 3



VUX

x = -5



Slope Intercept

$$y = mx + b$$

slope y-int

Find the slope and the *y*-intercept of the graph of each linear equation.

a. $y = -4x - 2$

slope: -4

y-int: -2

b. $y - \cancel{5} = \frac{3}{2}x + 5$

$+5$

$y = \frac{3}{2}x + 5$

slope: $\frac{3}{2}$

y-int: 5

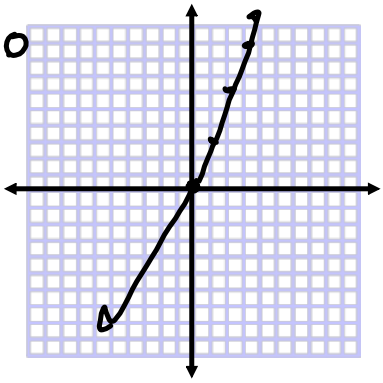
Slope Intercept

$$y = mx + b$$

Graph each linear equation.

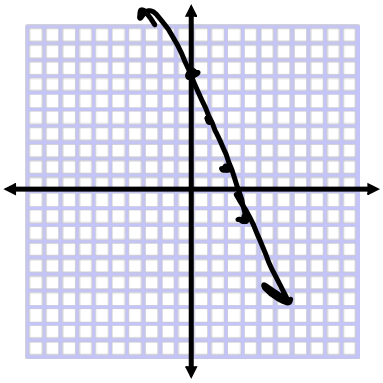
1. $y = 3x + 0$

x	y
0	0
1	3
2	6

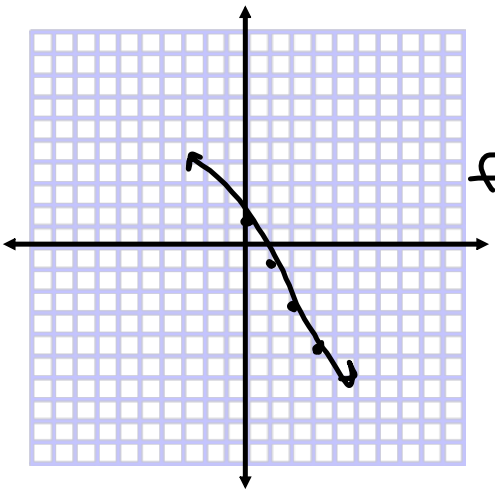


2. $y = -3x + 7$

x	y
0	7



Graph f(x) = −2*x* + 1.



$f(6) = -11$

$(6, -11)$

x	f(x)
6	−11

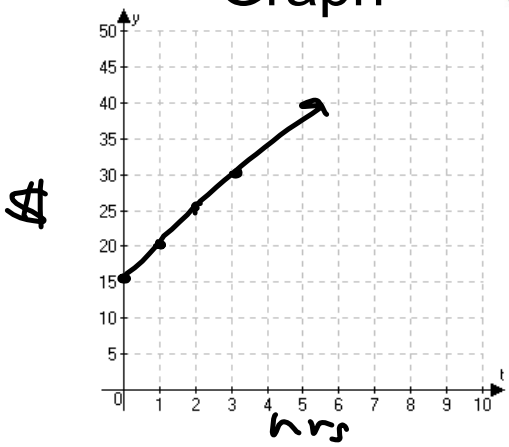
You already have $15 dollars saved up from doing chores. You make $5 per hour babysitting. Write and graph an equation that represents how much money you have after x hours of babysitting.

Equation

$y = 5x + 15$

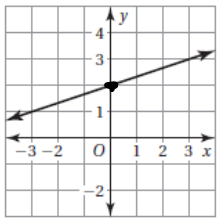
How much would you have if you babysat 13.6 hours? $83

Graph



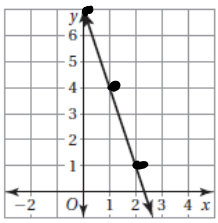
Write an equation of the line in slope-intercept form.

1.



$y = \frac{1}{3}x + 2$

2.



$y = -3x + 7$

Use the table to write a linear function that relates y to x

x	-3	-2	-1	0	1	2	3
y	-6	-3	0	3	6	9	12

$y = \frac{3}{1}x + 3$

"y"

x	f(x)
0	5
5	12
10	19
15	26
20	33

+7

+7

$y = \frac{7}{5}x + 5$

Point-Slope Form

Key Idea

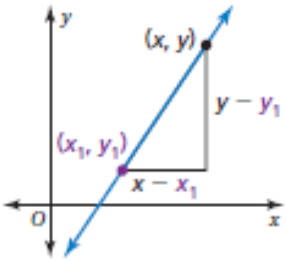
Point-Slope Form

Words A linear equation written in the form $y - y_1 = m(x - x_1)$ is in **point-slope form**. The line passes through the point (x_1, y_1), and the slope of the line is m.

Algebra $y - y_1 = m(x - x_1)$

slope

passes through (x_1, y_1)



Write in *point-slope form* an equation of the line that passes through the given point and has the given slope.

$x_1 \; y_1$

1. (1, 2); $m = -4$

$y - 2 = -4(x - 1)$

$y - \cancel{2} = 4x - 4$

$+2 \qquad + 2$

$y = 4x - 2$

2. (7, 0); $m = 1$

$y - 0 = 1(x - 7)$

$y = x - 7$

Work on:

EOL Unit 4 Review and

EOL Unit 6 Review