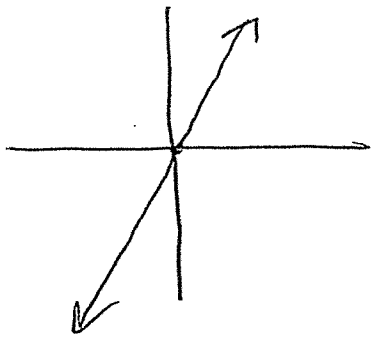
Part 3 Review

Is a coordinate a solution?

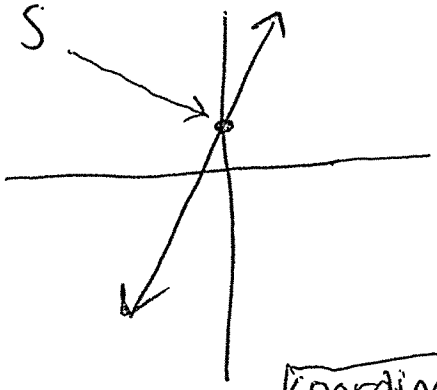
→ If the coordinate falls on the line, it is a solution



EX: (0,0) is a solution

(-3,4) is NOT a solution

Y-intercept - where the line crosses the y axis



Slope (rate): $\frac{\text{rise}}{\text{run}}$ Graph or $\frac{y_2 - y_1}{x_2 - x_1}$ Coordinates

EX

(1,0) (8,3)

x_1, y_1 x_2, y_2

$$\frac{3-0}{8-1} = \frac{3}{7}$$

Rate of a table

x	y
1	2
2	4
3	6
4	8

+1 (1 → 2) +2

$$\frac{\text{change in } y}{\text{change in } x}$$

rate or slope:

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

y-intercept is where $x = 0$.
Go backwards in the table, following the pattern if 0 isn't on the table

Slope-Intercept Form

$$y = mx + b$$

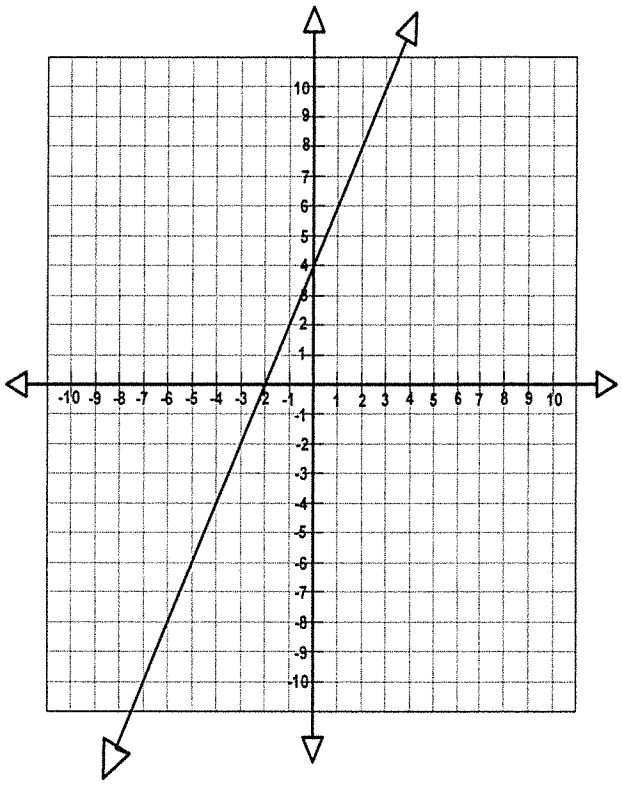
m = slope

b = y-intercept

I can find the slope

Which answers are solutions of the graph?

a) (2,0)
b) (0,4)
c) (2,8)
d) (-2,0)
e) (4,1)

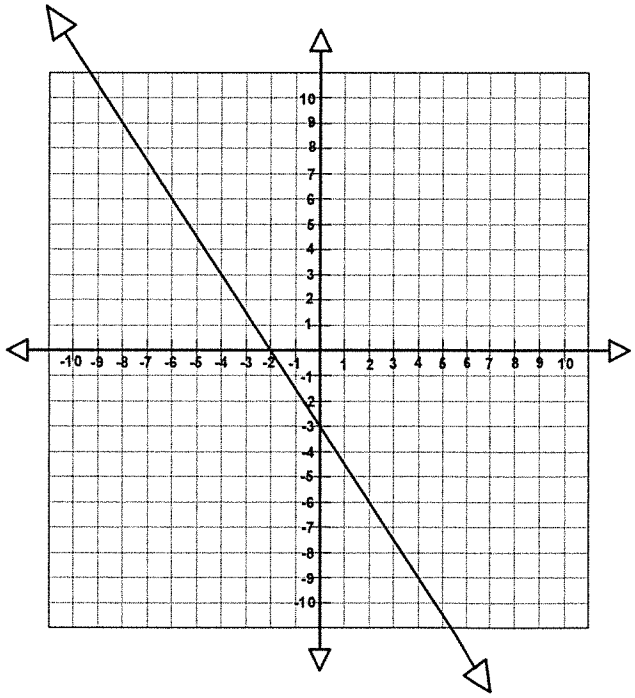


Slope:

Y-intercept:

Which answers are solutions of the graph?

a) (0,-3)
b) (-4,1)
c) (2,8)
d) (3,1)
e) (-8,9)



Slope:

Y- intercept :

.Two linear functions are described below. Based on the information below, which of the following statements are true?

Function 1 has the equation $y = -3x + 5$
Function 2 is a line passing through the points (0, 5) and (5, -10)

a. Function 1 and 2 have the same slope.
b. Function 1 and 2 have the same x-intercept
c. Function 1 and 2 have the same y-intercept
d. Function 1 and 2 represent the same lines.

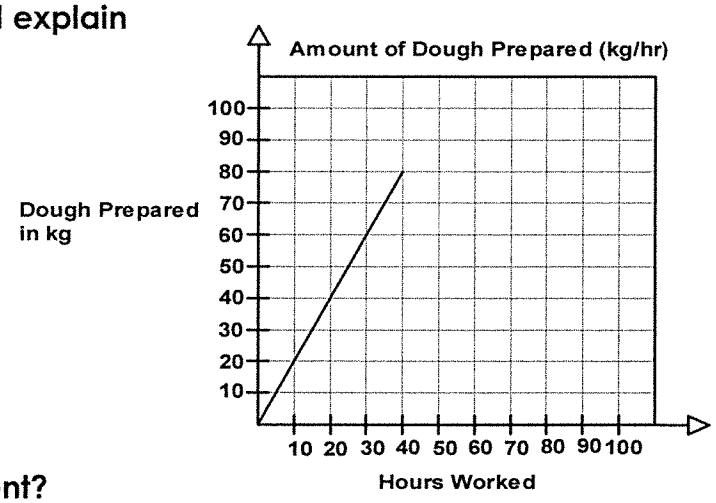
1. Determine the rate of change and explain what it means.

Time (Hours)	Distance (Miles)
4	168
6	252
8	336
10	420

2. Write an equation in slope-intercept Form

3. What does the y-intercept represent?

1. Determine the rate of change and explain What it means



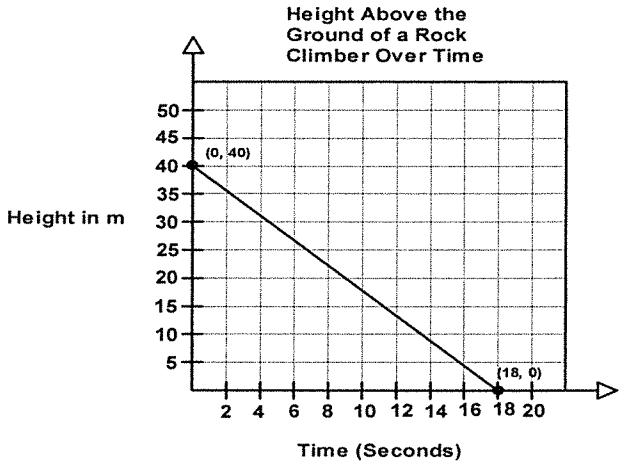
2. Write an equation in Slope-intercept form.

3. What does the y-intercept represent?

1. **Determine the rate of change.**

2. **Write an equation in Slope-intercept form.**

3. **What does the y-intercept represent?**



Which table represents a linear function with the same slope as y = - 4x + 5

a.

x	0	1	2	3	4
y	3	6	9	12	15

b.

x	-2	-1	0	1	2
y	1	3	5	7	9

c.

x	0	-1	-2	-3	-4
y	-8	-4	0	4	8

d.

x	-2	-1	0	1	2
y	10	15	20	25	30

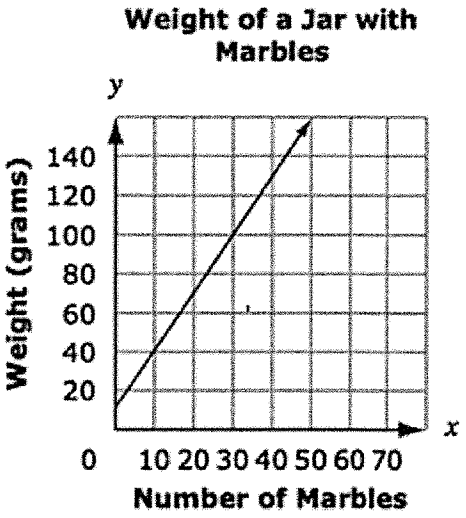
Calculate the slope and explain what it means

a. 3 ; every time a marble is put in the jar, it adds 3 grams.

b. 1/3; every time 3 marbles are put in the jar, it adds 1 gram

c. 3/2; every time 3 marbles are put in the jar, it adds 2 grams.

d. 2/3; every time 2 marbles are put in the jar, it adds 3 grams.



Part 4 – Functions

Evaluating Function

If $f(x) = 3x + 4$ find $f(-2)$

$3(-2)+4$

$-6+4 = \boxed{-2}$

Is it a solution?

Is $(\underset{x}{4}, \underset{y}{2})$ a solution to

$f(x) = 3x + 4$?

Plug 4 in as x and see

If it $= y$ (2)

$3(4)+4 = 16$

Not a solution!

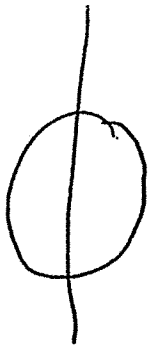
Is $(3, 13)$ a solution?

$3(3)+4 = 13$ Yes!

Is it a function?

Graph

Must pass vertical line Test



NO

Yes

Ordered Pairs

Each input can only have <u>one</u> output

(3,1) (4,1) (5,7)

Yes, NO x values repeat

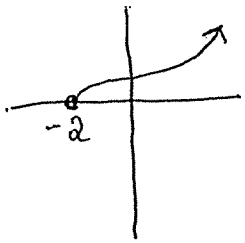
(2,1) (4,7) (2,8)

NO, 2 has more than one output

Domain: x values

(3,1) (4,2) (5,7)

D: {3,4,5}



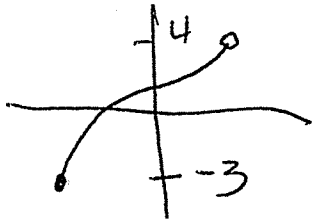
D: $x \geq -2$

Range: y values

(3,1) (4,2) (5,7)

R: {1,2,7}

R: $-3 \leq y < 4$



I can evaluate a function

If $f(x) = -2x + 2$ then find $f(-2)$	If $g(x) = -x^2 + 5x$, then find $g(-12)$
If $f(x) = -4x + 7$ then find $f(3)$	If $f(x) = -x+4$, then find $f(-3)$

A company makes cell phones where $f(x) = 32x + 40$ represents the cost to make the phones and x represents the number of cell phones made. Which statement is correct?

a. It costs $8 to make two cell phones
b. It costs $200 to make five cell phones
c. It costs $320 to make ten cell phones
d. It costs $72 to make two cell phones

I can determine if an ordered pair is a solution

Which of the following is a solution to the function $f(x) = -\frac{1}{2}x - 6$

a) (-2, -5)

b) (0, -6)

c) (5, 19)

d) (-3, -4)

Which of the following is a solution to the function f(x) = 3x + 4

a) (-2, -11)

b) (0, 6)

c) (6, -9)

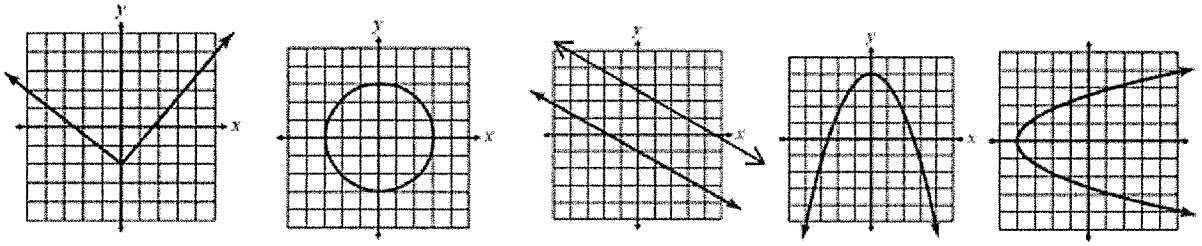
d) (10, 34)

Which of the following is a solution to the function f(x) = -2x +1 ? Circle all that apply

a. (4,0) b. (3,7) c. (0,1) d. (8, -15)

I can determine if a relation is a function or not and I can find domain and range.

Which relations are functions? Circle all functions.



Determine the domain and range.

{ (-3, -6), (-1, -6), (5, -6), (8, -6) }

Domain:
Range:

Is this relation a function? Explain your reasoning.

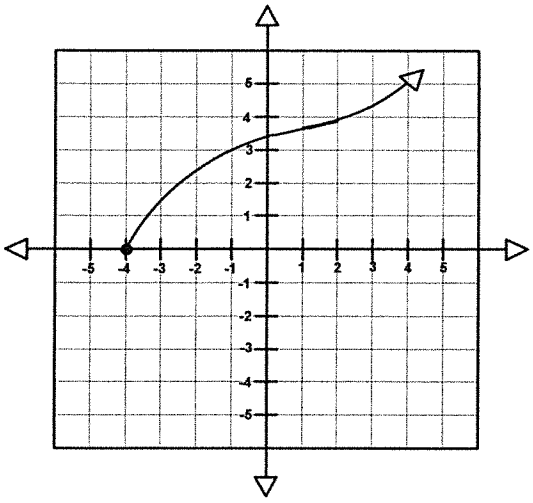
Determine the domain and range.

{ (-2, 4), (-2, 0), (6, 5), (0, -2) }

Domain:
Range:

Is this relation a function? Explain your reasoning.

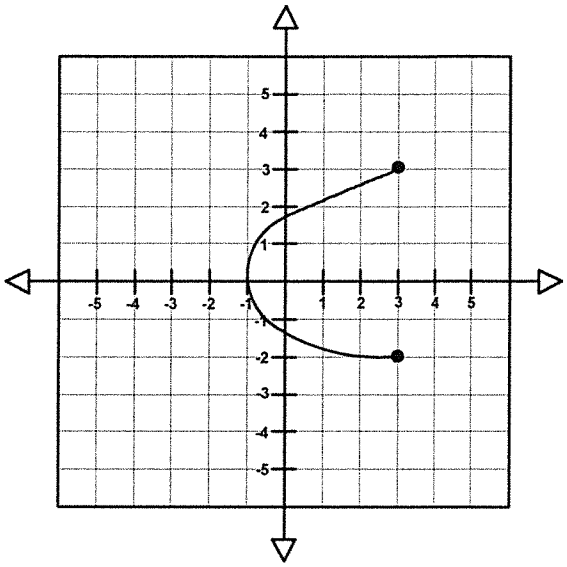
Determine the domain and range.



Domain:
Range:

Is this relation a function? Explain your reasoning.

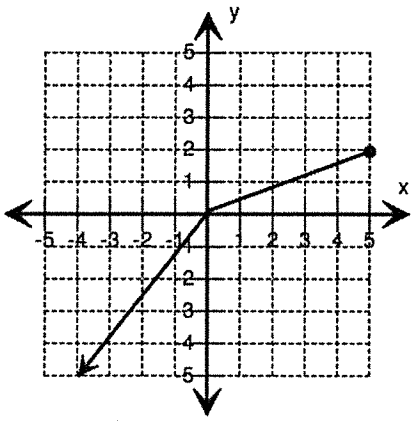
Determine the domain and range.



Domain:
Range:

Is this relation a function? Explain your reasoning.

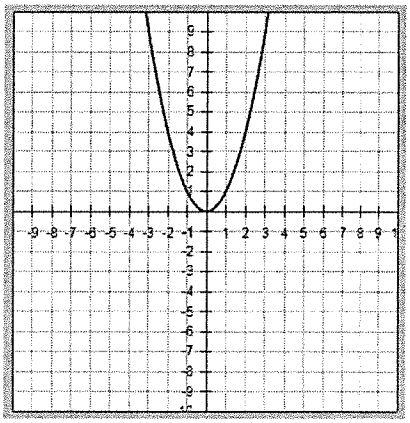
Determine the domain and range.



Domain:
Range:

Is this relation a function? Explain your reasoning.

Determine the domain and range.



Domain:
Range:

Is this relation a function? Explain your reasoning.

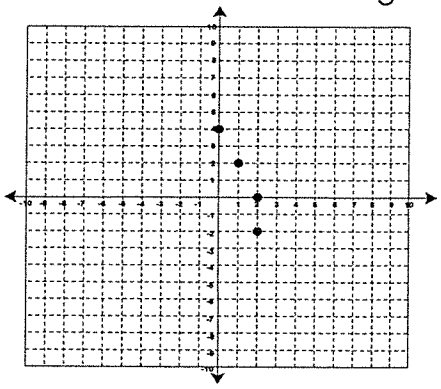
Determine the domain and range.

Number of Identical Notebooks	Regular Cost of Notebooks (No Discounts)
7	5.53
2	1.58
5	3.95
3	2.37

Domain:
Range:

Is this relation a function? Explain your reasoning.

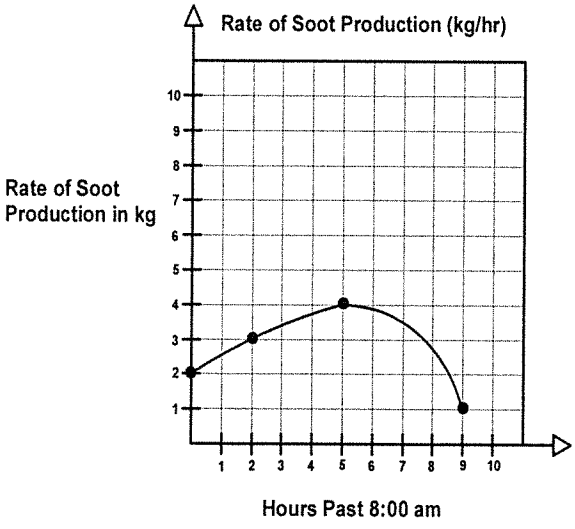
Determine the domain and range.



Domain:
Range:

Is this relation a function? Explain your reasoning.

Answer the following questions about the graph below



1. What is the domain and range?

Domain:

Range:

2. How much soot is the factory producing at 12?

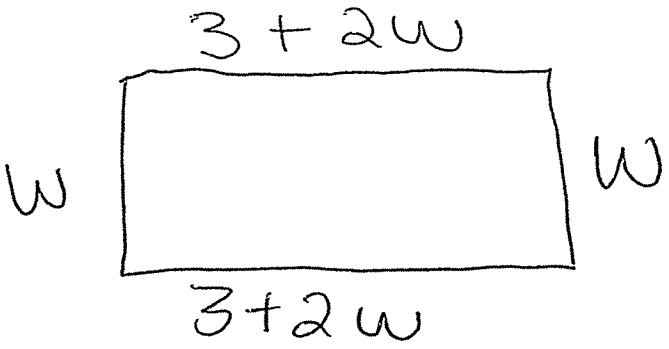
3. What is a reasonable domain?

a.) -2 Hours b.) 7 Hours c.) 10 Hours

Part 5 - Review

Perimeter Add all sides together

The perimeter of a rectangle is 36cm. The length is 3 more than twice the width. What are the dimensions?



① Add sides

$3+2w+3+2w+w+w=36$

$6w+6=36$

$-6 \quad -6$

$\frac{6w}{6}=\frac{30}{6}$

$w=5$

② Plug in to find length

$3+2w$

$3+2(5)$

13

Width is 5cm

Length is 13cm

Inequalities

$>$ or $<$ Open dot or dashed line

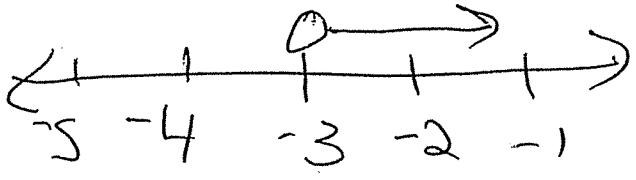
$\leq$ or $\geq$ closed dot or solid line

Greater
$>$ or $\geq$ Shade above

Less
$<$ or $\leq$ Shade below

$$-2x + 8 < 14$$
$$-8 \quad -8$$
$$\frac{-2x}{-2} < \frac{6}{-2}$$
$$x > -3$$

* If you divide by a negative, Flip sign!!



Name_____

Hour_____

Semester 1 Final Exam Study Guide

I can solve equations

Solve for x. $-(x + 5) = 3x + 2(x - 4)$	Solve for x. $-3x - 6x + x - 7 = -15x$
Solve for x. $-2x - (8 - 4x) = -18 + 2x$	Solve for x. $75 = 3 (-6x - 5)$

Describe the steps in both math and writing for solving the following problem: $3x - (2 + 5x)=12$

Math

Written

_____

_____

_____

_____

_____

_____

_____

_____

_____

$-4k+6=1-4k-1$	$4(b-4)+8b=-88$
$-18-8n=2(-6n+5)$	$7p+4-4=-12+7p+5+7$
$1+6n+6n=-6+4n+7n$	$-198=-3(-6+7n)-6n$

I can represent real world problems

The length of a rectangle is 7 cm more than twice its width. The perimeter of the rectangle is 32 cm. What are the dimensions of the rectangle?
The length of the rectangle is 6 in. more than its width. The perimeter of the rectangle is 44 in. What are the dimensions of the rectangle?

I can write equations in slope-intercept form and graph

x	y
-10	3
-5	6
0	9
5	12
10	15

Which linear equation models this table?

a. $y = 5/3x + 9$

b. $y = 3/5\ x + 9$

c. $y = 9$

d. $y = 9x + 3/5$

Saif is sitting on top of a building and tosses a ball down to his friend who is on the ground. The height, y, in feet, of the ball is a function of time, x in seconds as shown in the table:

x	y
0	11
0.5	12
1	11
1.5	5
2	0

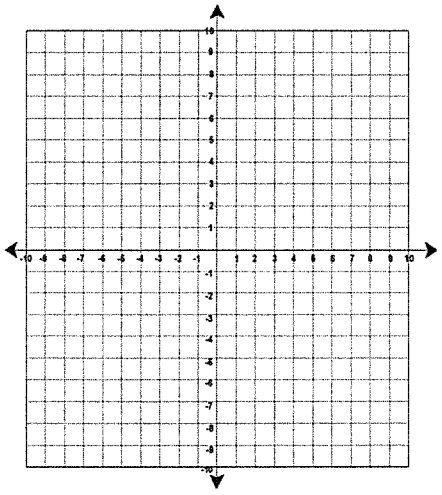
Which statement **best** describes the meaning of the y-intercept of this function?

a. The ball is originally 11 feet above the ground.
b. The ball reaches a maximum height of 11 feet.
c. The ball takes 12 seconds to reach the ground.
d. The ball reaches a maximum height after 12 seconds.

I can graph inequalities

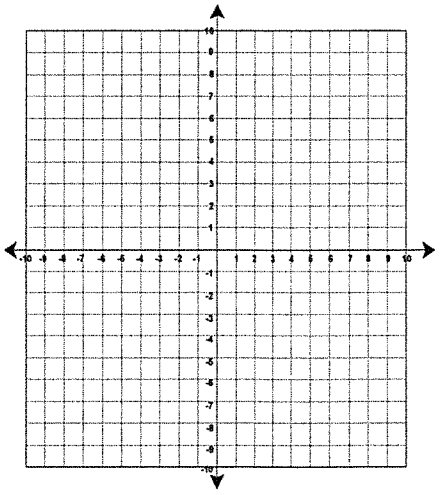
Graph the inequality

$Y > 2x+4$



Graph the inequality

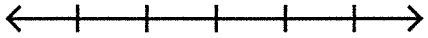
$Y \leq -3x -4$



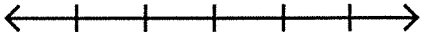
I can solve inequalities

Solve then graph

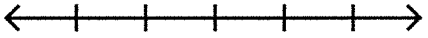
$5x + 2 < 2x - 4$



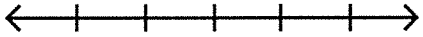
$-4 > 2(-x - 8)$



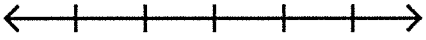
$9n - 8 \leq 12n + 4$



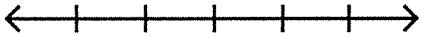
$3 \leq -3(-x - 9)$



$76 > 4(1 + 6k)$



$80 \geq -4(-5 + 3x)$



$-4(-6 - 3a) + 4 > 6a + 16$