

## What's Going On?

**Checking In**

**Minds on**

Find the Slope!

**Action!**

The Rule of 4

**Consolidation**

The Unit at a Glance

**Learning Goal - I will be able to work with graphs, equations, tables of values and world problems describing linear relations.**

# L.G.L.

On yesterday's Learning Goal page,

Create three tables of values where the first differences:

1. Show a linear relationship
2. Show a non-linear relationship
3. Cannot be used

①

x	y
0	2
1	4
2	6
3	8
4	10

Red curly braces on the right side of the y-values indicate constant first differences of 2 between consecutive rows.

②

x	y
1	1
3	3
5	6
7	10

Red curly braces on the right side of the y-values indicate increasing first differences: 2, 3, and 4.

③

x	y
1	2
3	4
7	6

The x-values 1, 3, and 7 are circled in red, indicating that the x-values are not in arithmetic progression, making it impossible to determine the first differences.

# Homework Logs

\*Add the following questions to your review:

Pg. 96-97 #8, 12

Pg. 99 #8

# Unit Test

Tuesday

## Minds on

# Find the Slope!

A line goes through the points  $(-3, 8)$  and  $(6, 2)$ .  
 Determine the slope of the line.

$$\begin{aligned} & \frac{8-2}{-3-6} \\ &= \frac{6}{-9} \\ &= -\frac{2}{3} \end{aligned}$$

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

$$\frac{-6}{9} = \left( \begin{array}{c} -2 \\ - \\ 3 \end{array} \right)$$

**Action!**

## The Rule of Four

A relation can be represented in four different ways:

1. in words
2. in a graph
3. in a table of values
4. in an equation

## Given a table of values:

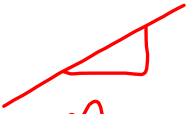
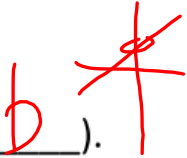
1. Use the table of values to determine the slope and initial value
2. Use the slope ( $m$ ) and initial value ( $b$ ) to determine an equation. ( $y = mx + b$ )
3. Use the equation, or table of values, to make a graph. (use initial value and slope / rise and run, or plot points from the table)
4. Use your imagination to make up a real world problem!

## Given an equation:

1. Use equation to make a graph (use the initial value (b) and slope (m) / rise and run).
2. Use the equation to make a table of values. (choose X-values, find Y-values)
3. Use your imagination to make up a real world problem!



## Given a graph:

- 
- 
1. Use the graph to determine the slope (m) and initial value (b).
  2. Use the slope and initial value to make an equation. ( $y = \underline{mx + b}$ )
  3. Use the equation to make a table of values. (choose x-values, find y)
  4. Use your imagination to make up a real world problem!

## Given a word problem:

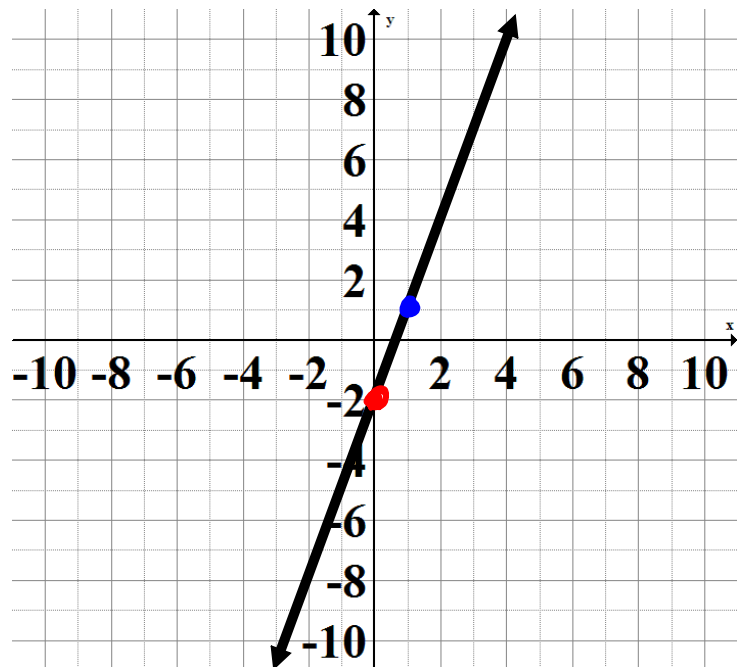
1. Determine the rate of change and initial problem from the problem.
2. Use the rate of change ( $m$ ) and initial value ( $b$ ) to determine an equation.
3. Use the equation to make a graph. (use initial value and slope / rise and run)
4. Use the equation to make a table of values. (choose x-values, find y)

**Action!** Putting it all Together

Given a table of values...

x	y
-2	-4
-1	-5
0	-2
1	1
2	4

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



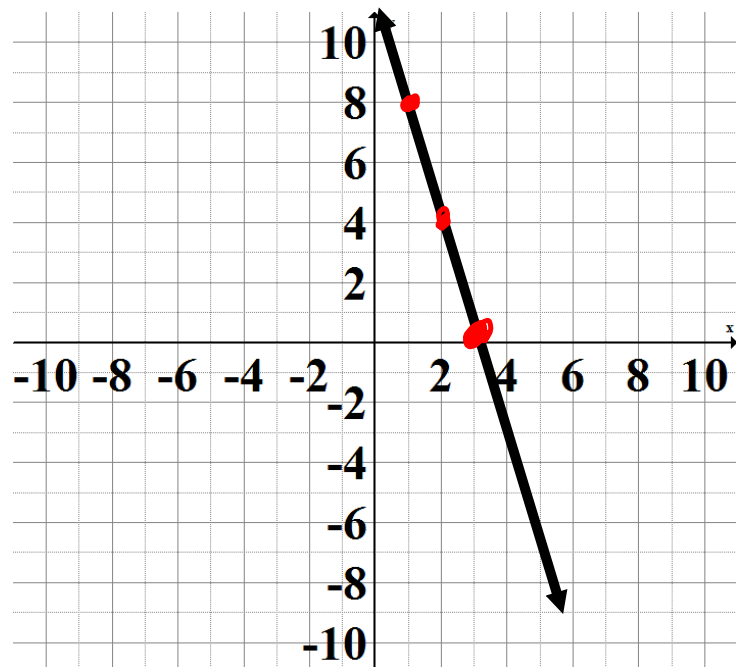
Real World?

**Action!** Putting it all Together

Given an equation...

x	y
0	12
1	8
2	4
3	0

$$y = -4x + 12$$



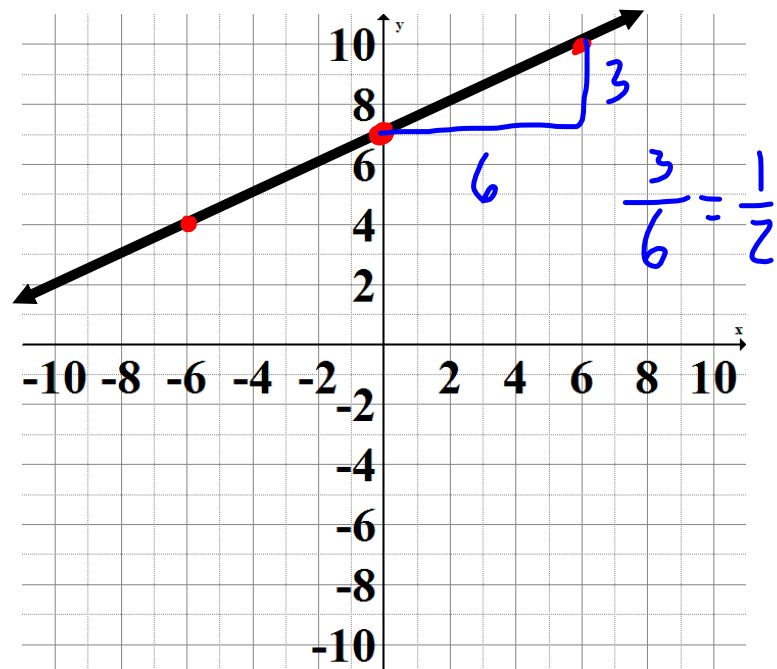
Real World?

**Action!** Putting it all Together

Given a graph...

x	y
0	7
2	8
4	9
6	10

$$y = \frac{1}{2}x + 7$$



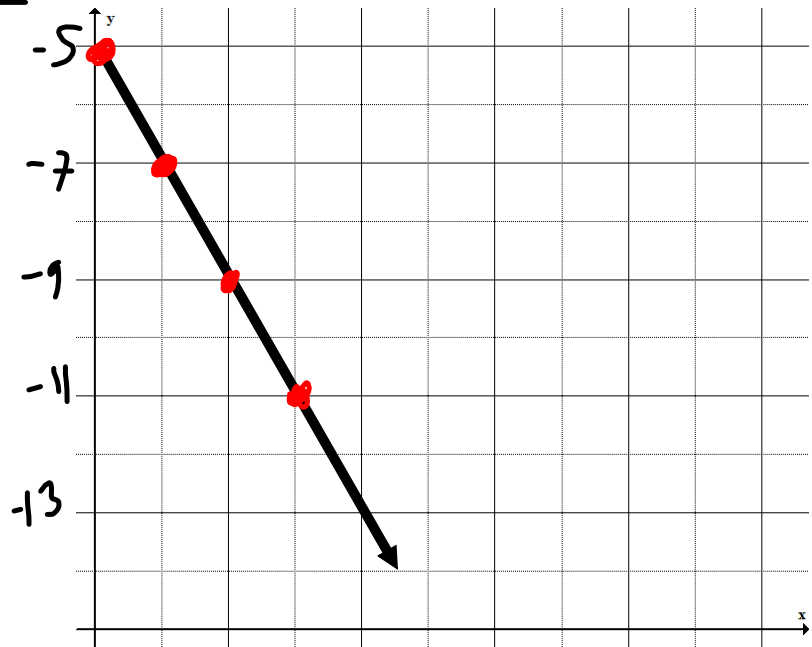
Real World?

**Action!** Putting it all Together

Given a word problem...

Y	T
0	-5
1	-7
2	-9
3	-11

$$T = -2Y - 5$$



Upon landing on Mars during its first mission, the Mars Rover measures the temperature to be  $-5^{\circ}\text{C}$ . Due to its distance from the sun, every year since then the temperature has dropped by  $2^{\circ}\text{C}$ .

## Consolidation

Practice it!

