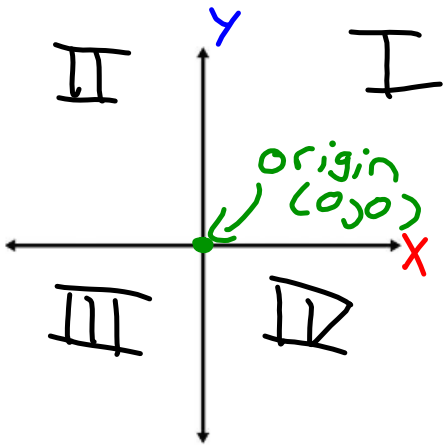
Lesson #28 – Proportional Relationships on Graphs

A **coordinate plane** is a 2 dimensional surface in which we can plot points.

A coordinate plane has two **axes**. The horizontal axis is called the x axis. The vertical axis is called the y axis.

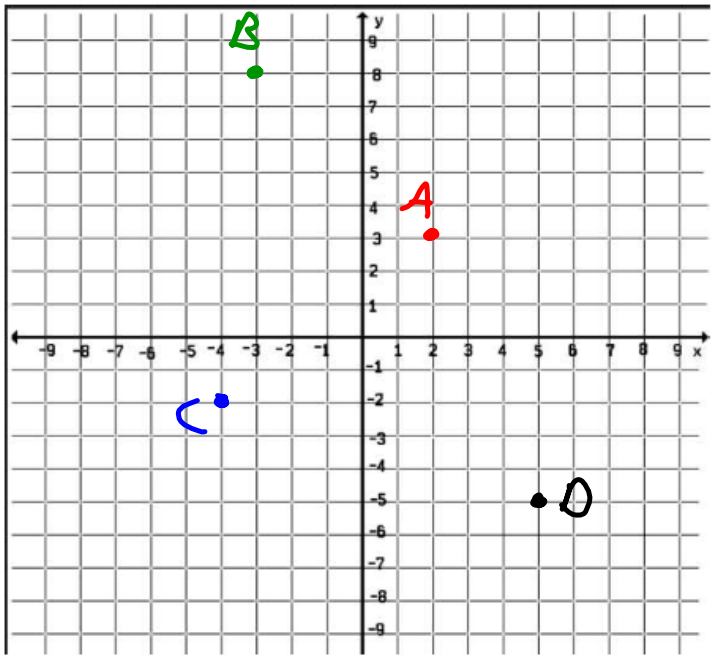


An **ordered pair** is a point which represents a location on the coordinate plane.

An **ordered pair** is always written as (x , y)

Example 1) Plot the following points on the coordinate plane below.

A) (2, 3) B) (-3, 8) C) (-4, -2) D) (5, -5)



Recall:

Isaiah:

Isaiah sold candy bars to help raise money for his scouting troop. The table shows the amount of candy he sold to the amount of candy he received.

Candy Bars Sold (x)	Money Received (y)
1	2
4	8
6	12
8	16

$\frac{y}{x}$

Is the amount of candy bars sold proportional to the money he received? How do you know?

Proportional.

$k = 2$

Jason:

Jason sold candy bars to help raise money for his scouting troop. The table shows the amount of candy he sold to the amount of candy he received.

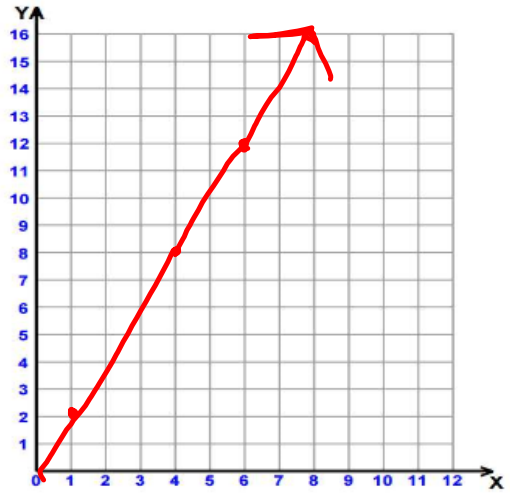
Candy Bars Sold (x)	Money Received (y)
2	$3
4	$5
8	$8
12	$14

Is the amount of candy bars sold proportional to the money he received? How do you know?

Not Proportional The ratios are not constant

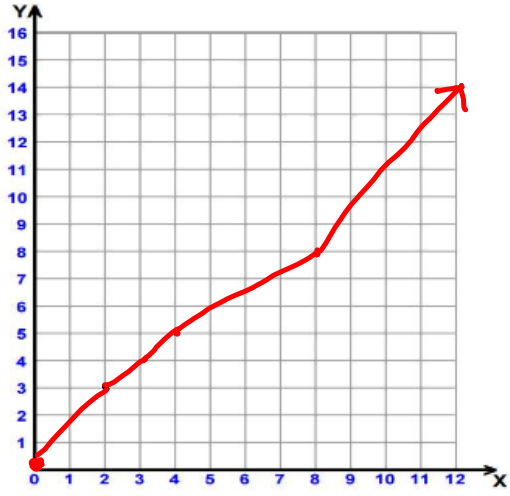
Plot the ordered pairs for all the values of Isaiah's table.

Candy Bars Sold (x)	Money Received (y)
1	2
4	8
6	12
8	16



Plot the ordered pairs for all the values of Jason's table.

Candy Bars Sold (x)	Money Received (y)
2	$3
4	$5
8	$8
12	$14



Characteristics of proportional relationships on graphs:

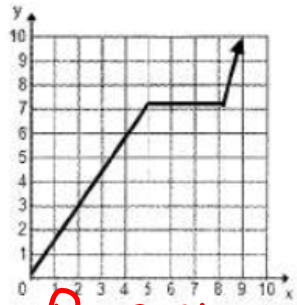
1) Start at the origin

2) Have to be Straight lines.

Try it!

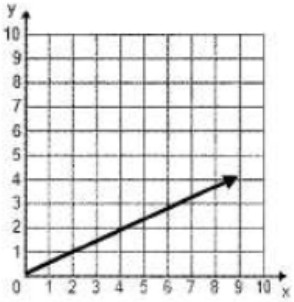
Determine if the following graphs show a proportional relationship between two quantities. Explain your reasoning.

1)



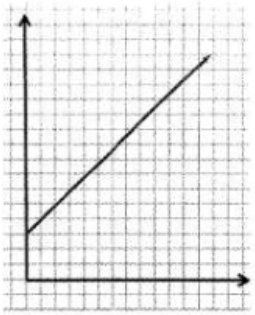
Not Proportional.
Not a straight line.

2)



Straight line & starts at origin. Proportional!

3)



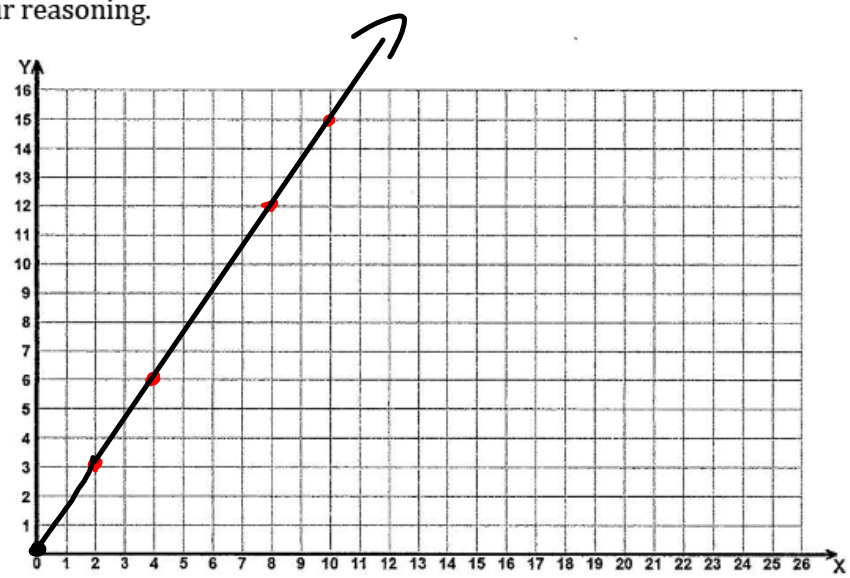
this graph is not proportional bc it does not start at zero.

4)

Unproportional because it does not start at the origin

5) Use the table below to graph the following relationship. Tell whether the relationship is proportional or not proportional. Explain your reasoning.

x	y
2	3
4	6
8	12
10	15

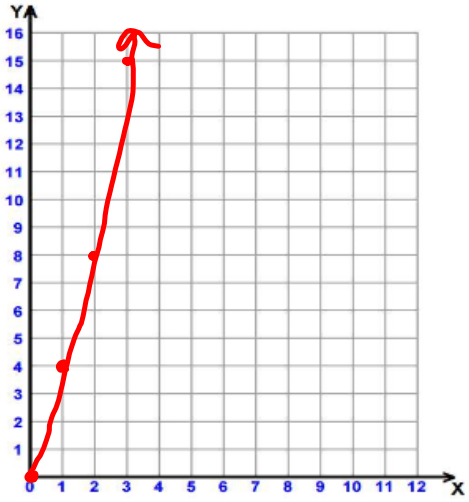


Proportional!
Straight line
+ Starts at origin.

6) The table below shows the number of calories an athlete burned per minute of exercise.

Part A) Graph the relationship that is shown on the table below.

Calories Burned	
Number of Minutes	Number of Calories
0	0
1	4
2	8
3	15



Not Proportional.
Not a Straight line.

Sum it up!

List the two characteristics of proportional graphs: