Lesson 5: Identifying Proportional and Non-Proportional Relationships in Graphs

Classwork

Opening Exercise

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

x Candy Bars Sold	y Money Received ($)
2	3
4	5
8	9
12	12

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

_____

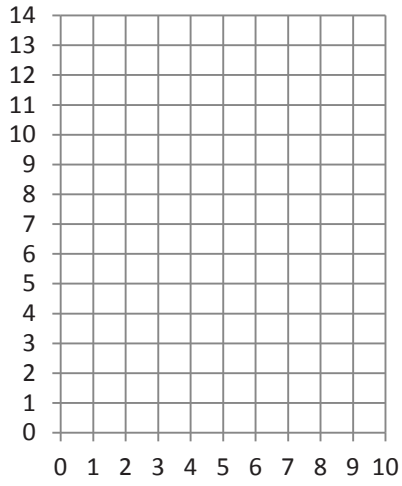
_____

Exploratory Challenge/Examples 1–3: From a Table to a Graph

Example 1

Using the ratio provided, create a table that shows money received is proportional to the number of candy bars sold. Plot the points in your table on the grid.

x Candy Bars Sold	y Money Received ($)
2	3



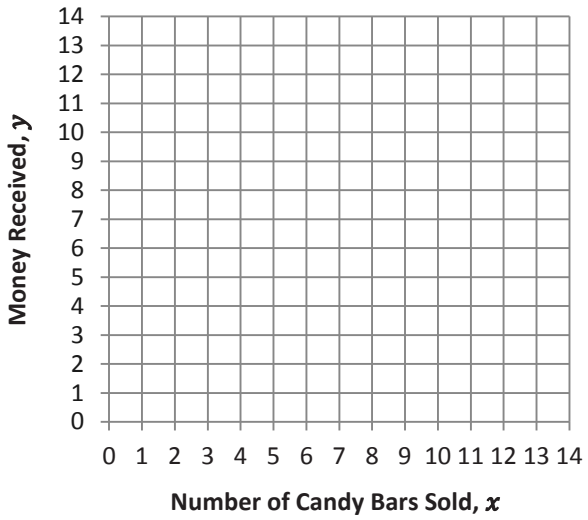
Important Note:

Characteristics of graphs of proportional relationships:

Example 2

Graph the points from the Opening Exercise.

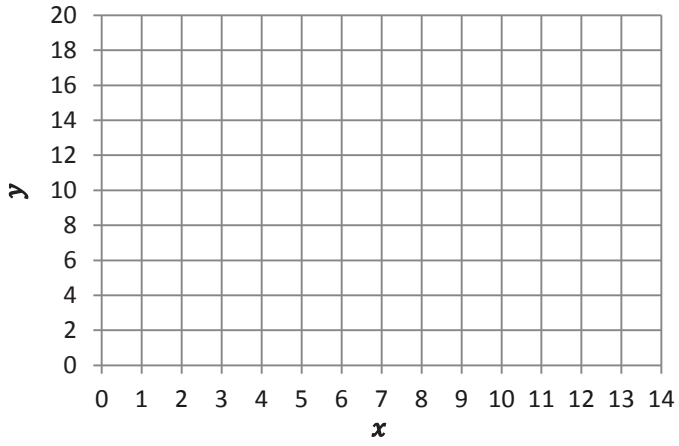
x Candy Bars Sold	y Money Received ($)
2	3
4	5
8	9
12	12



Example 3

Graph the points provided in the table below, and describe the similarities and differences when comparing your graph to the graph in Example 1.

x	y
0	6
3	9
6	12
9	15
12	18



Similarities with Example 1:

Differences from Example 1:

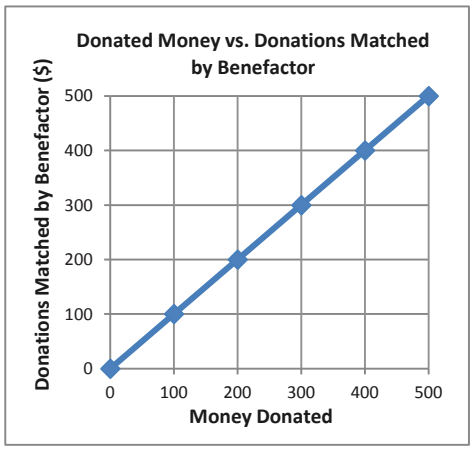
Lesson Summary

When two proportional quantities are graphed on a coordinate plane, the points appear on a line that passes through the origin.

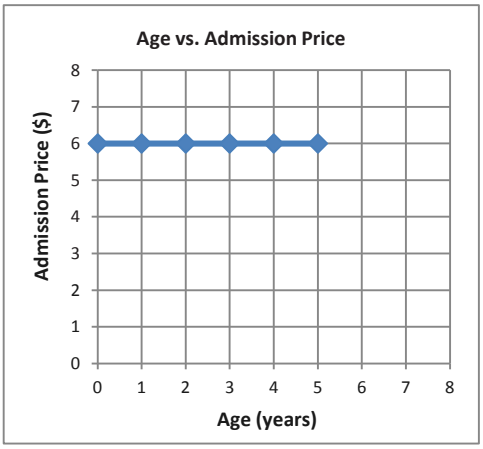
Problem Set

1. Determine whether or not the following graphs represent two quantities that are proportional to each other. Explain your reasoning.

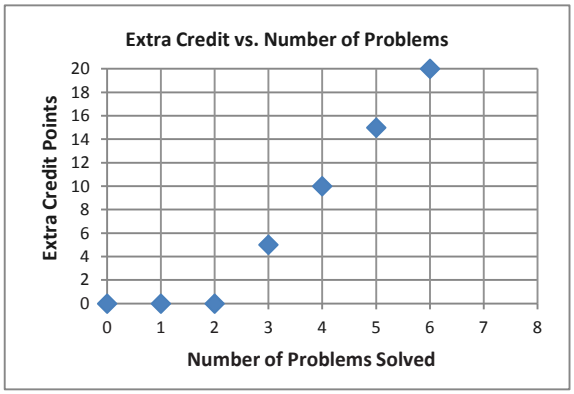
a.



b.

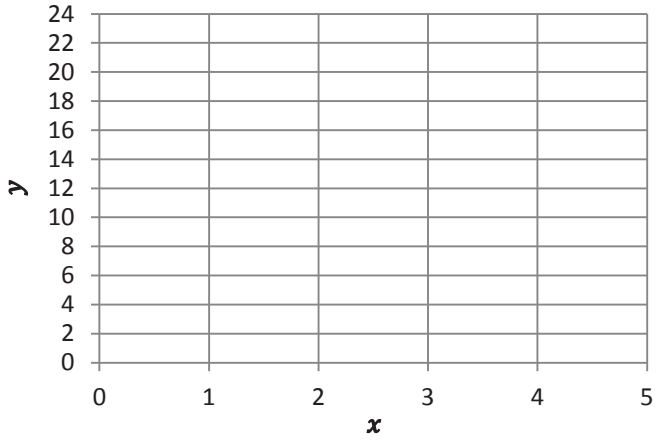


c.



2. Create a table and a graph for the ratios 2: 22, 3 to 15, and 1: 11. Does the graph show that the two quantities are proportional to each other? Explain why or why not.

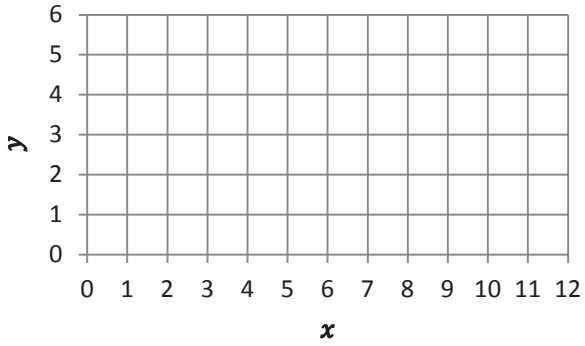
x	y



3. Graph the following tables, and identify if the two quantities are proportional to each other on the graph. Explain why or why not.

a.

x	y
3	1
6	2
9	3
12	4



b.

x	y
1	4
2	5
3	6
4	7