

Possible Solutions

The table below shows the relationship between the amounts of money in Sarah's savings account and the number of months she has been saving money. Is this an example of a proportional relationship?

Months	Amount in Savings Account
2	\$63.00
5	\$112.50
7	\$145.50

- Proportional relationships must be a relationship that contains the point (0, 0). The relationship also has a constant rate of change.
- This problem is a real world problem that is non-proportional because Sarah has money in her account before she started her regular savings.

Months	Amount in Savings Account
2	\$63.00
5	\$112.50
7	\$145.50

+3 +49.50
+2 +33.00

- Looking at the differences between the numbers in the table, it becomes apparent that the change is different between the numbers. However, if the student determines the amount of savings per month, the same rate appears.

$$49.5 \div 3 = 16.5$$

$$33 \div 2 = 16.5$$

- Since these rates are the same, the student can now determine how much money will be in the account at zero months.
- If 2 months is \$63 and the rate is \$16.50 per month, then \$33.00 was placed into the account from the original amount after 2 months. This would make the starting amount \$30, since $\$63.00 - \$33.00 = \$30.00$.

- Therefore, this is not a proportional relationship because there is \$30.00 in the account before she starts her monthly savings program.

Possible Solution 2

- For the data to be proportional the $\frac{y}{x}$ should be the same for every x, y value.

$$\frac{63}{2} = 31.50$$

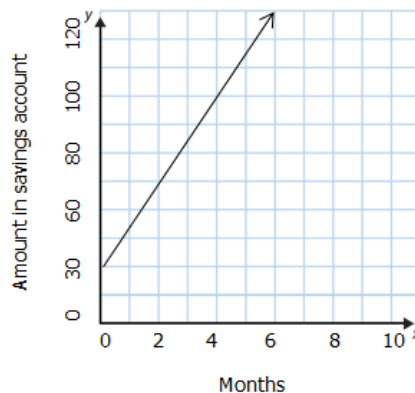
$$\frac{112.50}{5} = 22.5$$

$$\frac{145.50}{7} = 20.71$$

Since all these ratios are different, the data does not represent a proportional relationship because there is not a constant rate of proportionality (k).

Possible Solution 3

- For data to represent a proportional relationship, the graph of the data must go through the origin (0, 0).



- The data does not show a proportional relationship because the graph does not go through the point (0, 0).