Lesson Summary:

The points (0,0) and (1, r), where r is the unit rate, will always fall on the line representing two quantities that are proportional to each other.

- The unit rate r in the point (1, r) represents the amount of vertical increase for every horizontal increase of 1 unit on the graph.

- The point (0,0) indicates that when there is zero amount of one quantity, there will also be zero amount of the second quantity.

These two points may not always be given as part of the set of data for a given real-world or mathematical situation, but they will always fall on the line that passes through the given data points.

Problem Set

1. The graph to the right shows the distance (in ft.) ran by a Jaguar.

   a. What does the point (5, 280) represent in the context of the situation?

   b. What does the point (3, 174) represent in the context of the situation?

   c. Is the distance run by the Jaguar proportional to the time? Explain why or why not.

   d. Write an equation to represent the distance ran by the Jaguar. Explain or model your reasoning.

Seconds

2. Championship T-shirts sell for $22 each.

   a. What point(s) MUST be on the graph for the quantities to be proportional to each other?

   b. What does the ordered pair (5, 110) represent in the context of this problem?

   c. How many T-shirts were sold if you spent a total of $88?

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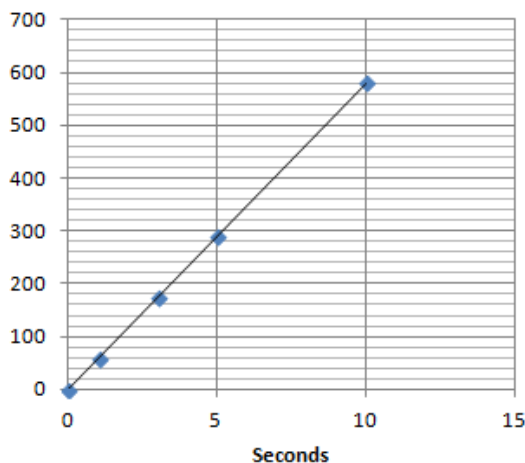
3. The following graph represents the total cost of renting a car. The cost of renting a car is a fixed amount each day regardless of how many miles the car is driven. It does not matter how many miles you drive; you just pay an amount per day.

    a. What does the ordered pair (4, 250) represent?

    b. What would be the cost to rent the car for a week? Explain or model your reasoning.
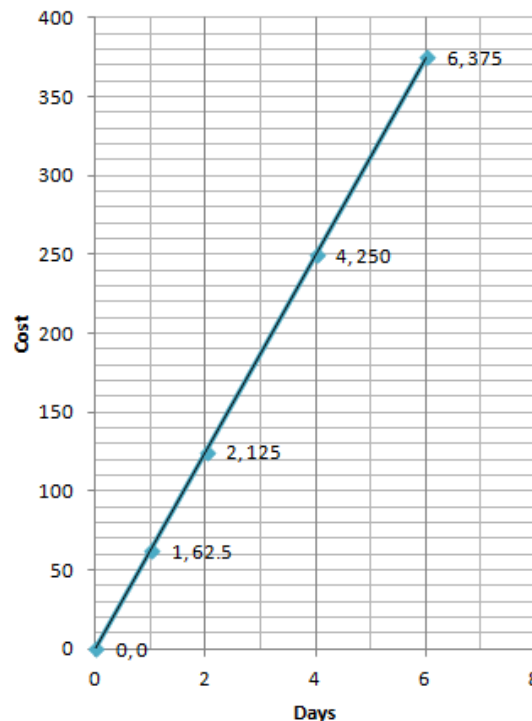
4. Jackie is making a snack mix for a party. She is using M&M's and peanuts. The table below shows how many packages of M&M's she needs to how many cans of peanuts she needs to make the mix.

    a. What points MUST be on the graph for the number of cans of peanuts to be proportional to the packages of M&M's? Explain why.

    b. Write an equation to represent this relationship.

    c. Describe the ordered pair (12, 24) in the context of the problem.

Packages of M&M's	Cans of Peanuts
0	0
1	2
2	4
3	6
4	8