

Lesson 9 Reteach

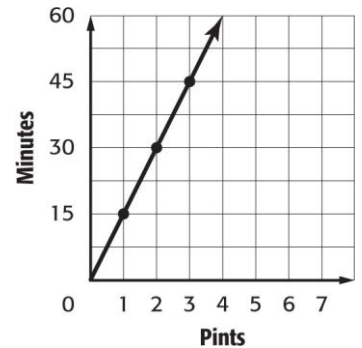
Direct Variation

When two variable quantities have a constant ratio, their relationship is called a **direct variation**.

The constant ratio is called the **constant of proportionality**.

Example 1

The time it takes Lucia to pick pints of blackberries is shown in the graph. Determine the constant of proportionality.



Since the graph forms a line, the rate of change is constant. Use the graph to find the constant of proportionality.

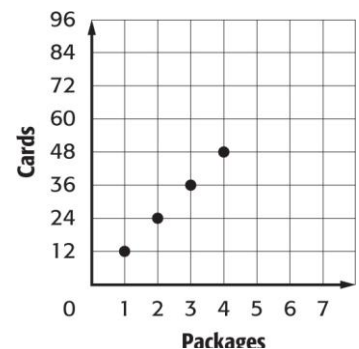
$$\frac{\text{minutes}}{\text{number of pints}} = \frac{15}{1} \quad \frac{30}{2} \text{ or } \frac{15}{1} \quad \frac{45}{3} \text{ or } \frac{15}{1}$$

It takes 15 minutes for Lucia to pick 1 pint of blackberries.

Example 2

There are 12 trading cards in a package. Make a table and graph to show the number of cards in 1, 2, 3, and 4 packages. Is there a constant rate? a direct variation?

| | | | | |
|---------------------|----|----|----|----|
| Numbers of Packages | 1 | 2 | 3 | 4 |
| Number of Cards | 12 | 24 | 36 | 48 |



Because there is a constant increase of 12 cards, there is a constant rate of change. The equation relating the variables is $y = 12x$, where y is the number of cards and x is the number of packages. This is a direct variation. The constant of proportionality is 12.

Exercises

- SOAP** Wilhema bought 6 bars of soap for \$12. The next day, Sophia bought 10 bars of the same kind of soap for \$20. What is the cost of 1 bar of soap?
- COOKING** Franklin is cooking a 3-pound turkey breast for 6 people. If the number of pounds of turkey varies directly with the number of people, make a table to show the number of pounds of turkey for 2, 4, and 8 people.