Assignment

LESSON 3: Fish-Inches

Write

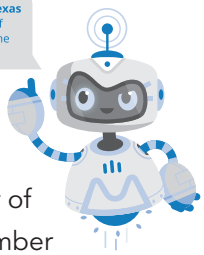
Given a graph of a proportional relationship, the quotient of the *y*-value of any ordered pair divided by the *x*-value of that ordered pair is the constant of proportionality. Explain why.

Remember

When the relationship between two quantities is proportional, the graph of the relationship is a straight line that passes through the origin. The point (1, *r*) represents the unit rate, and the ratio $\frac{r}{1}$ represents the constant of proportionality, *k*.

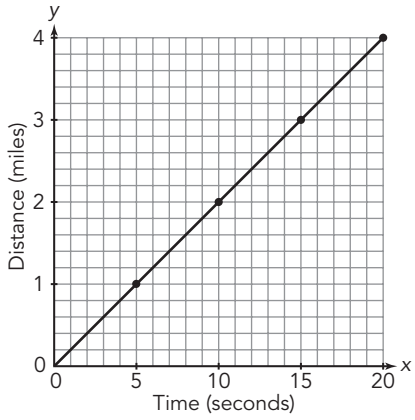
Practice

Visit **livehint.com/texas** or use this QR code if you need a hint on the Practice questions.

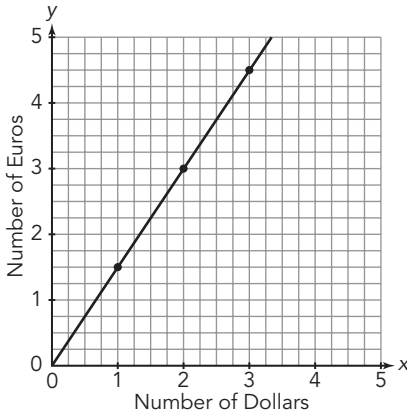


Determine the constant of proportionality *k* and interpret it in the context of each problem.

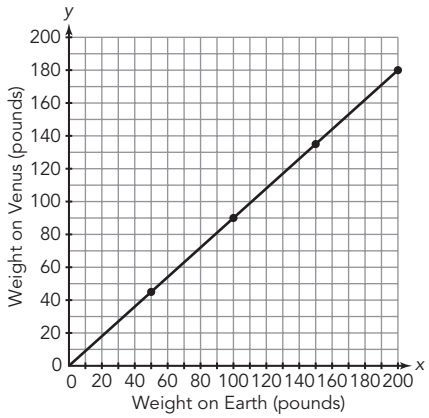
1. The graph shows the relationship between the distance in miles between you and a storm and the number of seconds between when you see lightning and when you hear thunder.



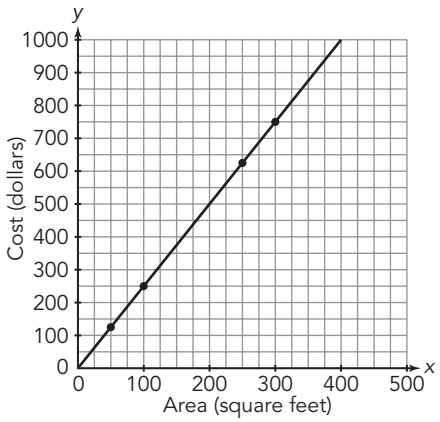
2. The graph shows the relationship between the number of euros Jason received and the number of dollars Jason exchanged during his trip to Spain.



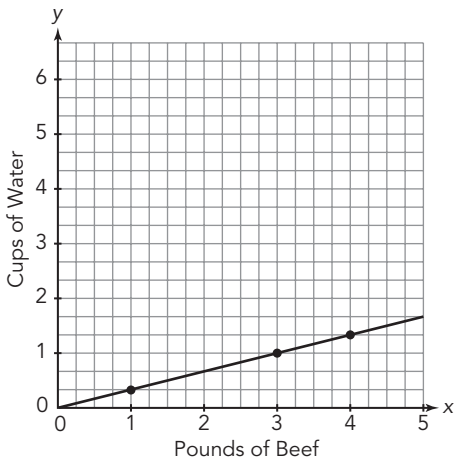
3. The graph shows the relationship between the weight of an object on Earth and the weight of the same object on Venus.



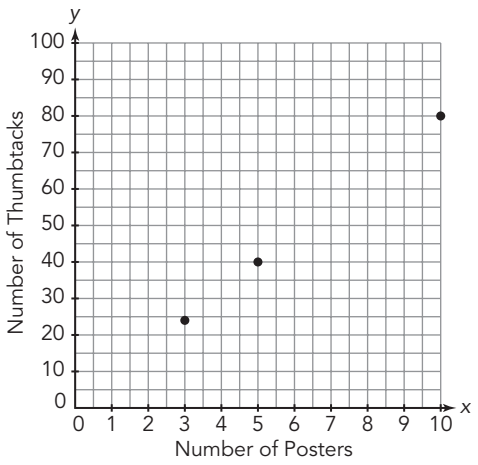
4. The graph shows the relationship between the area of a room in square feet and the cost of covering the floor with new tile.



5. The graph shows the relationship between the cups of water and pounds of beef needed for a beef casserole.



6. The graph shows the relationship between the number of posters in a classroom and the number of thumbtacks used to hold them up.



Stretch

At any given time of the day, the length of your shadow is proportional to your height. Suppose a person who is 81 inches tall casts a shadow that is 94.5 inches long. Another person in the same place casts a shadow that is 84 inches long. How tall is the second person?

Review

1. Use the equation for the constant of proportionality, $k = \frac{y}{x}$, to determine each unknown value.

   a. $k = \frac{3}{2}$ and $y = 15$

   b. $k = \frac{1}{4}$ and $y = 5$

2. Determine a unit rate for each scenario.

   a. $\frac{3}{4}$ of an inch of rain fell in $\frac{1}{2}$ hour.

   b. Heather charges a half-dollar for each eighth of a pizza.

3. Simplify each expression.

   a. $8 - 4(5) + 2^4$

   b. $10 \div (1 + 4) - 3^2$