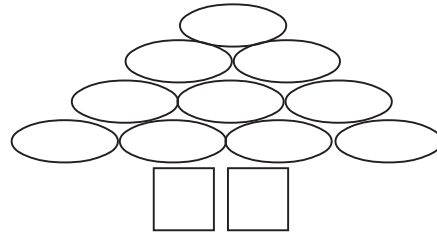
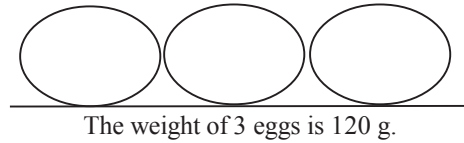


**Practice
2-3****Constant of Proportionality**

1. The variable y is in a proportional relationship with x . The number of squares represents an x value. The number of ovals represents the corresponding y value. Identify the constant of proportionality.



2. The weight of 3 eggs is shown. Identify the constant of proportionality of total weight to number of eggs.



3. Suppose the relationship between x and y is proportional. When x is 6, y is 78. Identify the constant of proportionality of y to x .
4. Since a middle school opened, the girls' basketball team has had the same record every season. The team has won a total of 169 games while losing only 13 games. Find the constant of proportionality of wins to losses.
5. Does the table show a proportional relationship? If so, what is the constant of proportionality of y to x ?

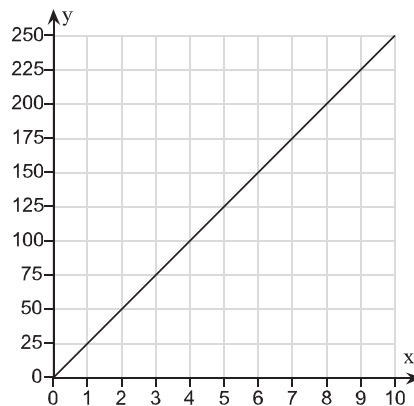
x	5	6	7	8
y	90	108	126	144

6. The distance a jet aircraft flies has a proportional relationship with its number of hours in flight. The table shows the number of miles flown for a number of hours in flight.

Passenger Jet Travel				
Hours	2	3	4	5
Miles	840	1,260	1,680	2,100

- a) Find the constant of proportionality.
- b) How long will the jet take to travel 4,620 miles?

7. The variable y has a proportional relationship with x as suggested by the graph. Use the graph to find the constant of proportionality.

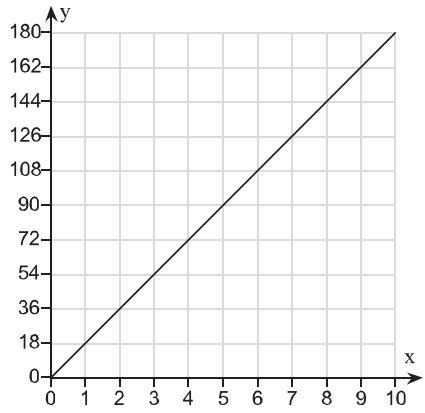


8. The graph shows a proportional relationship between a family's distance from home and the time they spent driving.
- What is the constant of proportionality?
 - What does the point (1,49) represent?
 - ☐ A. 49 miles in 1 hour
 - ☐ B. 1 mile in 49 hours
 - ☐ C. 49 miles in 49 hours



9. **Writing** Suppose the relationship between x and y is proportional. When x is 29, y is 275.5.
- Find the constant of proportionality of y to x .
 - Use the constant of proportionality to find x when y is 408.5.
 - Explain how you can tell a relationship that is proportional from a relationship that is not proportional.
10. **Reasoning** The number of pizzas is in a proportional relationship to the weight of the shredded cheese topping. When shredded, a 50-lb block of cheese is enough to make 162.5 large pizzas.
- Find the constant of proportionality.
 - Explain how you can use a constant of proportionality to find how much cheese is on one slice of pizza if there are 8 slices per pizza.

11. Error Analysis You and a friend look at the graph. Your friend incorrectly says the constant of proportionality of y to x is $\frac{1}{18}$.



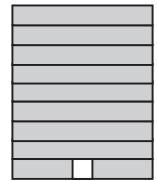
- a) Find the correct constant of proportionality.
- b) What is your friend's likely error?
 - ☐ A. Your friend found $x - y$.
 - ☐ B. Your friend found $x \cdot y$.
 - ☐ C. Your friend found $\frac{x}{y}$.
 - ☐ D. Your friend found $x + y$.

12. Helicopter Ride A couple takes a helicopter ride over a city. The table shows the proportional relationship between the altitude and time as the helicopter ascends.

Helicopter Ascent	
Time (min)	Altitude (ft)
5	2,595
6	3,114
7	3,633
8	4,152

- a) Find the constant of proportionality of altitude to time.
- b) What will the altitude of the helicopter be after 10 minutes?
- c) How long will it take to reach a height of 6,747 feet?

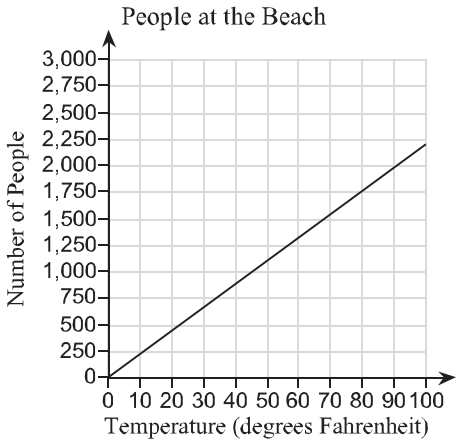
13. The height of a building is in a proportional relationship to the number of its floors. The figure shows the height of a building with 9 floors.



The height of a building with 9 floors is 135 feet tall.

- a) Find the constant of proportionality.
- b) Use the constant of proportionality to find the height of a building with 15 floors.
- c) What does the constant of proportionality tell you?

14. Estimation The graph for temperatures from 60°F to 100°F has been extended to the origin. It suggests a proportional relationship, at least for warmer days, between the number of people at a beach and the outdoor temperature.



- a) Estimate the constant of proportionality.
- b) About how many people are at the beach when it is 95 degrees?

- 15. Challenge** A city has two paint supply stores. Store A sells 2-gallon containers of paint. Each container covers 680 square feet for \$58. Store B sells paint only by the quart. Each quart sells for \$7.25 and covers 85 square feet. At each store, the cost of paint is in a proportional relationship to the amount of paint.

- a) Find the constant of proportionality for Store A.
- b) At which store is paint a better buy? (Hint: 4 quarts = 1 gallon)
- ☐ A. Paint is of equal value at both stores.
 - ☐ B. Store B
 - ☐ C. Store A

- 16. Challenge** A cell phone company has towers that are in a proportional relationship to how many people have its service.

- a) Find the constant of proportionality.
- b) If there are 576 towers in one state, how many customers are in that state?

Cell Phone Towers	
Customers (thousands)	Towers
5.25	252
6.25	300
7.25	348
9.25	444