Chapter 2 Test Review

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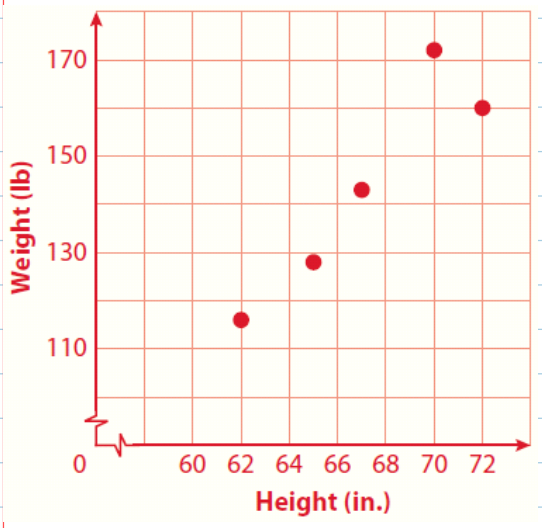
1. A relationship between two variables such that there is exactly one output value for each input value is called a(n) function.
2. The slope of a line is equal to the ratio of the Δy to the Δx between any two points on the line.
3. On the graph of a function, the independent variable is on the horiz(x) axis and the dependent variable is on the vert. (y) axis.
4. For a direct variation function, the ratio of the variables is constant.

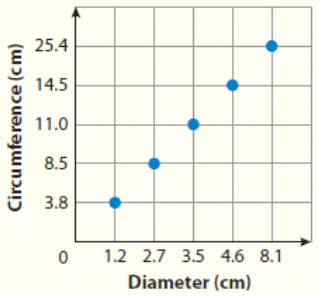
5. The table lists heights and weights for the starters on a high school girls' basketball team.

Height (Inches)	Weight (pounds)
67	143
62	116
65	128
72	160
70	172

Make a scatter plot of weight vs height for the data. Label the axes appropriately.



6. In a geometry class, students measured the diameters and circumferences of a variety of circular objects. What is wrong with the scatter plot of their data?



The axes tick marks are not labeled evenly.

For Exercises 7–9, state whether the relationship between the variables is proportional. If it is, complete Parts (a), (b), (c), and (d). If it is not, explain how you know.

a. Identify the independent and dependent variables.

b. Make a graph of the relationship.

c. Find the constant of proportionality, including units if appropriate.

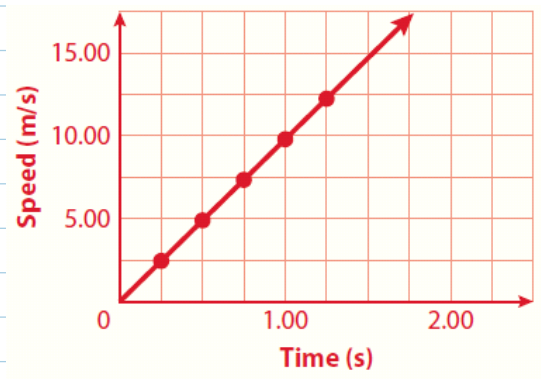
d. Write an equation for a direct variation function that models the data.

7. The table shows the speed of a ball after falling for various times.

Time (seconds)	Speed (meters per second)	$\frac{s}{t}$
0.25	2.45	9.8
0.50	4.90	9.8
0.75	7.35	9.8
1.00	9.80	9.8
1.25	12.25	9.8

(a) Indep: time ; Dep: speed

(b)



(c) $k = 9.8$ m/s/s OR 9.8 m/s^2

(d) $\frac{s}{t} = 9.8 \rightarrow s = 9.8t$

8. The table shows the period (time between bounces) for people of different weights on a bungee cord.

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Weight (lb)	Period (s)	$\frac{p}{w}$
100	8.0	.080
140	9.5	.068
180	10.7	.059
200	11.3	.056

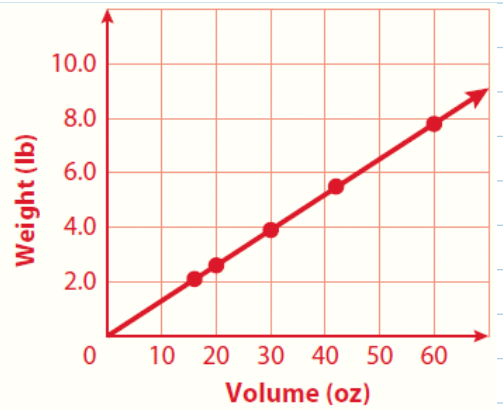
This is not a proportional relationship.

9. The table shows the weight of different volumes of water in a pitcher.

Volume (oz)	Weight (lb)	$\frac{w}{v}$
16	2.1	.13
20	2.6	.13
30	3.9	.13
42	5.5	.13
60	7.8	.13

(a) Indep: Volume ; Dep: Weight

(b)



(c) $k = .13$ lb/oz

(d) $\frac{w}{v} = .13 \rightarrow w = .13v$

10. Variable y is directly proportional to variable x, and y is 128 when x is 5.

a. Write an equation that gives y as a function of x.

b. Find the value of y when x is 12.

(a) $\frac{y}{x} = \frac{128}{5}$ $\quad y = \frac{128}{5}x$

$y = 25.6x$

(b) $y(12) = 307.2$

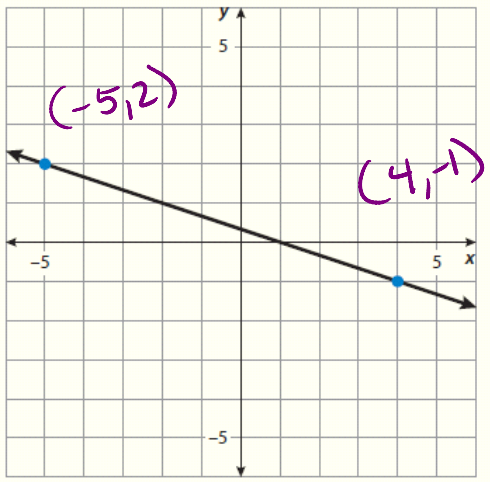
11. A house sewer drain must fall at least $\frac{1}{4}$ inch for each foot of length. What is the slope of a house sewer drain?

$m = \frac{-\frac{1}{4}\text{ in}}{12\text{ in}} = \frac{-1}{48} = -0.021$

12. Find the slope of a line that passes through the points $(-2, 1)$ and $(3, 8)$.

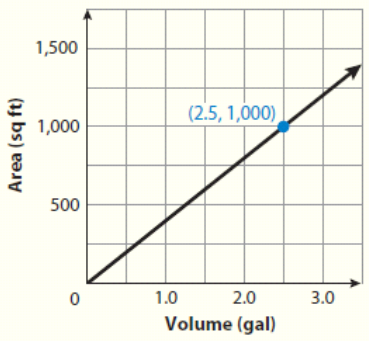
$m = \frac{8-1}{3+2} = \frac{7}{5}$

13. Find the slope of the line. The coordinates of the indicated points are integers.



$$m = \frac{2+1}{-5-4} = \frac{3}{-9} = -\frac{1}{3}$$

14. The graph shows the relationship between wall area covered and volume of paint from a certain manufacturer.



a. Find the slope of the graph, including units.

b. Write a sentence that interprets the slope as a rate of change.

(a)

$$m = \frac{1000\ ft^2}{2.5\ gal} = 400\ ft^2/gal$$

(b) Every gallon of paint covers 400 sq. ft. As the paint volume increases by 1 gallon, the wall coverage increases by 400 ft².