



Practice Masters Level C

1.4 Direct Variation and Proportion

In Exercises 1 and 2, a varies directly as b .

1. If $a = \frac{1}{4}$ when $b = 0.02$, find a when $b = 0.05$. _____
2. If $a = \frac{-2}{3}$ when $b = -15$, find b when $a = \frac{1}{5}$. _____

Determine whether the values in each table represent a direct variation. If so, write the equation for variation. If not, explain.

3.

x	y
10	-25
5	-12.5
0	0
-5	12.5
-10	25

4.

x	y
0	0
-3	-2
-6	-3
-9	-4
-12	-6

5. A spring stretches a distance that is directly proportional to the weight attached to the spring. A weight of 2.5 pounds stretches the spring 1.5 feet.
 - a. Find the constant of variation. _____
 - b. How much weight would be required to stretch the spring 10 feet? _____
 - c. How much distance would the spring stretch if the weight was 6.4 pounds? _____
 - d. How much weight would be required to stretch the spring 3 inches? _____
 - e. Explain why the equation of this model would be a line through the origin.

6. At a given time, the height of an object is directly proportional to the length of the shadow that is cast on the ground. A person 6 feet tall casts a shadow 1 foot long at noon.
 - a. What is the length of the shadow cast by a flagpole known to be 20 feet tall? _____
 - b. A tree cast a shadow of 3 feet. How tall is the tree? _____

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Answers

12. $x = \frac{-3}{4}$

13. $a = 8.4$

14. $b = -3$

15. $a = -10\frac{2}{3}$

16. $b = 90$

Lesson 1.4 Level C

1. $a = \frac{5}{8}$

2. $b = 4\frac{1}{2}$

3. $y = -2.5x$

4. no

5. a. 0.6
b. $16.\bar{6}$ pounds
c. 3.84 feet
d. $0.41\bar{6}$ pounds
e. because 0 pounds causes 0 stretch

6. a. $3\frac{1}{3}$ feet

b. 18 feet

Lesson 1.5 Level A

- D
- A
- B
- E
- F
- C

7. \$3364

8. Correlation–positive
 $y = 2x + 5$

9. Correlation–negative
 $y = -4.1x - 2.6$

10. Correlation–negative
 $y = -4.7x + 13.9$

Lesson 1.5 Level B

- False
- True
- True
- Positive
 $y = 1.8x - 0.45$
- Weak positive correlation
 $y = 0.14x + 5$
- a. $y = 0.5x + 22.5$
b. 0.41
c. 27.5
d. It is reasonable but not accurate, because the correlation coefficient is weak to moderately positive. He averaged 24.3 points per game.

Lesson 1.5 Level C

- $y = -1.8x + 72$
- 0.33
- 54 goals
- It is reasonable but not accurate. The correlation coefficient indicates weak negative correlation.
- $y = 4.9x + 18.5$
- 0.68