Lesson 82 • Graphing Equations Using Intercepts

Facts Simplify.

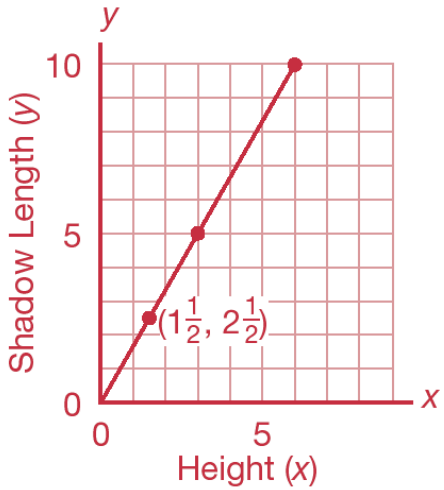
$2x + x$ $3x$	$2x - x$ x	$(2x)(x)$ $2x^2$	$\frac{2x}{x} = 2$	$\frac{x^2}{x} = x$
$8xy + 2xy$ $10xy$	$8xy - 2xy$ $6xy$	$(8xy)(2xy)$ $16x^2y^2$	$\frac{8xy}{2xy} = 4$	$\frac{8x^2y}{2y} = 4x^2$
$x + y + x$ $2x + y$	$x + y - x$ y	$(x)(y)(-x)$ $-x^2y$	$\frac{xy}{x} = y$	$\frac{x^2y^3}{x^2y} = y^2$
$4x + x + 2$ $5x + 2$	$4x - x - 2$ $3x - 2$	$(4x)(-x)(-2)$ $8x^2$	$\frac{-4x}{2x} = -2$	$\frac{4x^3}{2x^2} = 2x$

Written Practice

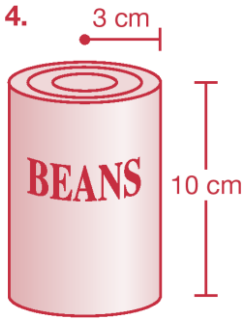
1. 4%

2. 10 ft

3. $(1\frac{1}{2}, 2\frac{1}{2})$; An object $1\frac{1}{2}$ ft tall would cause a shadow $2\frac{1}{2}$ ft long at the same moment the shadows in problem 2 were measured.



4. 90π cm^3



Written Practice *continued*

5. See student work. x = 13 cm, y = 26 cm, z = 24 cm

6. a. 2

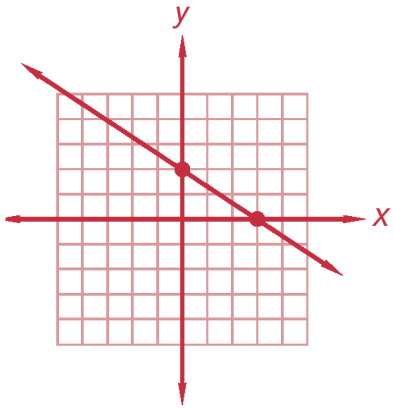
b. 30 cm^2, 120 cm^2

c. 4

7. a. 72°

b. 9.42 in.

8.



9. 77

10. $9\sqrt{3}$

11. $2\sqrt{11}$

12. $\frac{m}{2x}$

13. $\frac{1}{4}$

14. 150 mm^2; less than 2 cm^2

Written Practice *continued*

15. yes; Sample answer: The side lengths fit the Pythagorean Theorem. $2^2 + 2^2 = (2\sqrt{2})^2$ $4 + 4 = 8$

16. $\frac{60 \text{ mi}}{\text{hr}} \cdot \frac{\text{gal}}{30 \text{ mi}} = 2 \text{ gal/hr}$

17. a. $1.1\overline{6}$

b. $116\frac{2}{3}\%$

c. 1.167

18. $s = \frac{A}{\pi r}$

19. a. ABC, ACB, BAC, BCA, CAB, CBA

b. $\frac{1}{6}$

20. 36 m^2

21. $-3(x^2 + 3x + 14)$

Written Practice *continued*

22. $\frac{8}{3}$

23. 5

24. $x^2 + 2x + 5$; $x^2 + x - 1$; $2x^2 + 3x + 4$

25. A: Yes, this is a proportional relationship because $\frac{1}{8} = \frac{1}{8}$, $\frac{2}{16} = \frac{1}{8}$, $\frac{3}{24} = \frac{1}{8}$, and $\frac{4}{32} = \frac{1}{8}$. The graph is linear and passes through (0, 0).