
Selected Answers
for
*Core Connections Algebra*

## Lesson 2.1.1

**2-6.** $y = 7x + 5$

**2-7.** **a:** 5 **b:** –1 **c:** 132 **d:** –2

**2-8.** **a:** 2 **b:** –4 **c:** –5, –2, 0, 2, 4 **d:** –2 **e:** 13

**2-9.** **a and b:** They are functions because each only has one output for each input.

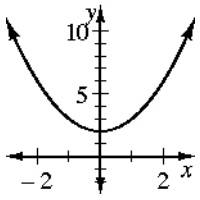
**c:** Not a function.

**d:** (a) D: all real numbers, R: $1 \le y \le 3$; (b) D: all real numbers, R: $y \ge 0$; (c) D: $x \ge -2$, R: all real numbers

**2-10.** All graphs have lines of symmetry. Graph (a) has multiple vertical lines of symmetry, one at each maximum and minimum; graph (b) has one line of symmetry at $x = 1$; graph (c) has one line of symmetry at $y = 1$.

## Lesson 2.1.2

**2-19.** Answers will vary. See graph at right.




**2-20.** **a:** –10 **b:** –3 **c:** –3 **d:** $-2\frac{2}{3}$

**2-21.** Answers will vary.

**2-22.** $y = 3x$

**2-23.** No solution; you cannot divide by zero.

**2-24.** $m = \frac{1}{3}$

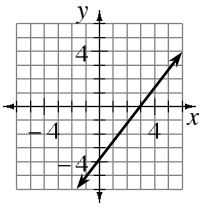
  

## Lesson 2.1.3

**2-31.** $f(x) = 4x + 4$

**2-32.** **a:** Line $a$: $y = 2x - 2$, Line $b$: $y = 2x + 3$

**2-33.** See graph at right. $y = \frac{4}{3}x - 4$

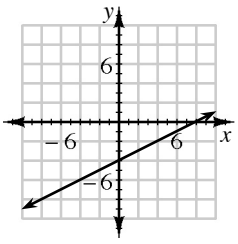



**2-34.** Answers will vary.

**2-35.** $x \neq -5$ because of the denominator cannot be 0.

## Lesson 2.1.4

**2-41.** **a:** $m = \frac{1}{2}$ **b:** $(0, -4)$ **c:**




**2-42.** **a:** $m = -2$ **b:** $m = 0.5$
**c:** Undefined **d:** $m = 0$

**2-43.** No; when $x = 12$, $y = 102$, so it would have 102 tiles.

**2-44.** **a:** $m = \frac{5}{3}$, $b = (0, -4)$ **b:** $m = -\frac{4}{7}$, $b = (0, 3)$ **c:** $m = 0$, $b = (0, -5)$

**2-45.** **a:** –18 **b:** –4 **c:** undefined **d:** –5

## Lesson 2.2.1

**2-48.** **a:** 4 **b:** 16 **c:** $y = 4x + 6$ **d:** It would get steeper.

**2-49.** **a:** $-\frac{4}{3}$ **b:** $(0, -5)$ **c:** $y = -\frac{4}{3}x - 5$

**2-50.** **a:** $x = 12$ **b:** $w = 0$ **c:** $x = -8$ **d:** no solution

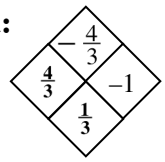
**2-51.** $y = -4x - 3$

**2-52.** Graphs (a) and (b) have a domain of all numbers, while graphs (a) and (c) have a range of all numbers. Graphs (a) and (b) are functions.

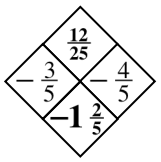
## Lesson 2.2.2

**2-59.** $y = 2x + 3$

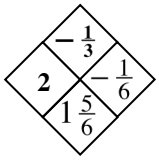
**2-60.** **a:**



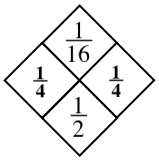

**b:**




**c:**

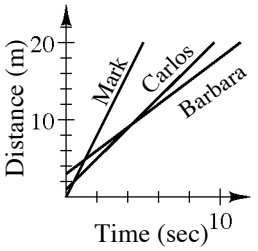



**d:**




**2-61.** **a:** The dependent variable is distance in meters and the independent variable is time in seconds.

**b:** See graph at right. Mark won the race, finishing in 5 seconds.



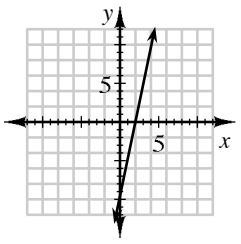

**c:** Barbara: $y = \frac{3}{2}x + 3$, Mark: $y = 4x$

**d:** 5 meters every 2 seconds, or $\frac{5}{2}$ meters per second.

**e:** 2 seconds after the start of the race, when each is 6 meters from the starting line.

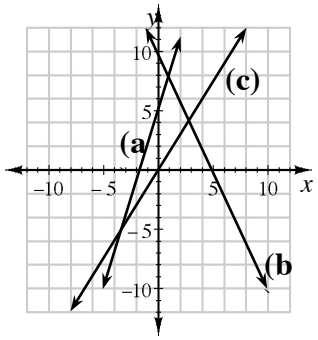
**2-62.** $x$-intercept: $(2, 0)$, $y$-intercept: $(0, -10)$

| $x$ | $y$ |
|---|---|
| –2 | –20 |
| –1 | –15 |
| 0 | –10 |
| 1 | –5 |
| 2 | 0 |
| 3 | 5 |
| 4 | 10 |




**2-63.** $m = 3$

**2-64.**




**2-65.** **a:** $y = -2x + 1$ **b:** $x$: $(0.5, 0)$, $y$: $(0, 1)$

**2-66.** **a:** 1 **b:** 0 **c:** 2 **d:** 7

**2-67.** **a:** growth = 5, Fig 0 = 3 **b:** growth = –2, Fig 0 = 3

**c:** growth = 3, Fig 0 = –14 **d:** growth = –5, Fig 0 = 3

## Lesson 2.2.3

**2-70.** **a:** $(4, 0)$ and $(0, –2)$ **b:** $(8, 0)$ and $(0, 4)$

**2-71.** **a:** $–1$ **b:** $-\frac{1}{2}$ **c:** $\frac{3}{2}$ **d:** $-\frac{1}{5}$

**e:** The line travels downward from the left to right, so $m = –1$.

**2-72.** **a:** $2\frac{38}{65}$ **b:** $–37\frac{1}{8}$ **c:** $–5\frac{1}{8}$ **d:** $–6\frac{1}{3}$

**2-73.** $y = –5x + 3$

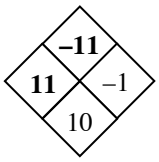
| IN ($x$) | 2 | 4 | 6 | 7 | **8** | 10 |
|---|---|---|---|---|---|---|
| OUT ($y$) | –7 | –17 | **–27** | **–32** | –37 | **–47** |

**2-74.** **a:** 4 **b:** 3 **c:** 1 **d:** 2

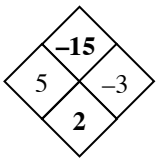
## Lesson 2.3.1

**2-82.** **a:** $y = 1.5x + 0.5$ **b:** Answers will vary.

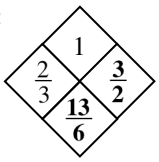
**2-83.** **a:**



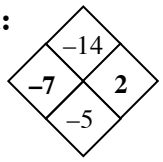

**b:**




**c:**



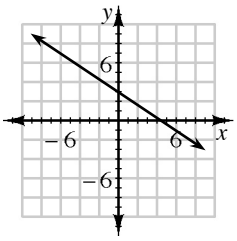

**d:**




**2-84.** **a:** y-intercept: $(0, –2.23)$ **b:** $y = \frac{13}{3} \approx 4.33$

**2-85.** **a:** $3,\ (0, 5)$ **b:** $-\frac{5}{4},\ (0, 0)$ **c:** $0,\ (0, 3)$ **d:** $4,\ (0, 7)$

**2-86.**



## Lesson 2.3.2

**2-90.** **a:** The slope represents the change in height of a candle per minute, $m = 0$ cm per minute.

**b:** The slope represents the gallons per month of water being removed from a storage tank, $m = -900$ gallons per month.

**2-91.** $y = -3x + 25$

**2-92.** **a:** –8 **b:** 1 **c:** –2 **d:** 17 **e:** –45 **f:** 125

**2-93.** $A = 50w + 100, A = (50)(52) + 100 = 2700$

**2-94.** **a:**

| Days ($x$) | 0 | 2 | 4 | 6 | 8 |
|---|---|---|---|---|---|
| Height cm ($y$) | 30 | 27 | 24 | **21** | **18** |

**b:** $\frac{-3 \text{ cm}}{2 \text{ days}}$ or –1.5 cm/day

**c:** $y = -\frac{3}{2}x + 30$

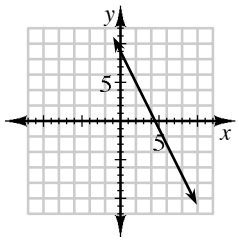
## Extension Activity

**2-96.** The equation in part (b) has no solution. There are the same number of $x$-terms on each side of the equation.

**2-97.** Rena is correct.

**2-98.** **a:** $\frac{-5 \text{ pounds}}{2 \text{ months}}$ or –2.5 pounds/month **b:** $y = -\frac{5}{2}x + 120$

**2-99.**




**2-100.** $y = 7x + 9$