

# Student Workbook Answers

16.  $5(r + 3) = 5r + 15$

17.  $9w + 54 + 4 = 9w + 58$

18.  $15 + 5m - 7 = 5m + 8$

19.  $11m + 7$

20.  $5f - 8$

21.  $1\frac{7}{8}x$

22.  $3.1p - 8.37$

23. area:  $5(x + 2) = 5x + 10$

perimeter:  $2(5) + 2(x + 2) = 2x + 14$

## 3.4 Extension Practice

1.  $2(1 + 4)$       2.  $3(3 - 1)$       3.  $5(6 + 5)$

4.  $7(5 - 2)$       5.  $9(9 - 2)$       6.  $20(3 + 5)$

7.  $16(2y - 3)$       8.  $5(3y + 8)$       9.  $8(2x + 3)$

10.  $11(x + 3)$       11.  $13(x + 3y)$

12.  $21(x - 2y)$       13. C

14.  $2(10x + 50)$ ,  $4(5x + 25)$ ,  $5(4x + 20)$   
 $10(2x + 10)$ ,  $20(x + 5)$

15.  $(3x + 4)$  in.

16. The additional cost is \$5.

## Chapter 4

### 4.1 Activity

1. a. Check students' work.

b. The areas are equal;  $A = bh$

2. a. A: 66 units<sup>2</sup>; B: 49 units<sup>2</sup>; C: 25 units<sup>2</sup>;  
D: 32 units<sup>2</sup>; E: 18 units<sup>2</sup>

b. A: 66 units<sup>2</sup>; B: 49 units<sup>2</sup>; C: 25 units<sup>2</sup>;  
D: 32 units<sup>2</sup>; E: 18 units<sup>2</sup>

The results are the same.

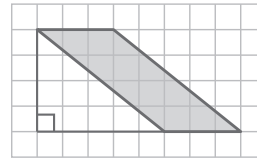
c. Answers may vary. Estimates from counting unit squares should be close to the answers from parts (a) and (b).

3. *Sample answer:* Draw a parallelogram and cut it along the height. Slide the cut off piece to the other end to form a rectangle. Then use the area formula for a rectangle to find the area of the parallelogram.

4. They are equal. *Sample answer:* Because their areas are equal and the length of the rectangle is equal to the base of the parallelogram, the parallelogram can be separated and rearranged to make a rectangle with the same dimensions as the parallelogram. So, the width of the rectangle must be equal to the height of the parallelogram.

5. 4 units; Find the perpendicular distance between the bases of the parallelogram as shown.

The height of this parallelogram is labeled on the outside of the parallelogram.



### 4.1 Practice

1. 40 m<sup>2</sup>      2. 150 ft<sup>2</sup>      3. 99 in.<sup>2</sup>      4. 70 m<sup>2</sup>

5. The side was used instead of the width.

$$A = 4(4) = 16 \text{ in.}^2$$

6. 2 units<sup>2</sup>      7. 48 units<sup>2</sup>      8. 6 in.

### 4.2 Activity

1. a. Check students' work.

b. *Sample answer:* The area of one piece is equal to one-half of the area of the rectangle;  $A = \frac{1}{2}bh$

2. a. Check students' work.

b. Check students' work.

c. parallelogram

d.  $A = \frac{1}{2}bh$ ; Check students' work.

3. a. C; C      b. F; F      c. A; A      d. D; D

e. B; B      f. G; G      g. H; H      h. E; E

4. *Answer should include, but is not limited to:* Students should create their own "triangle matching game," then trade games with a partner and solve each other's match game.

5. *Sample answer:* Two identical triangles make a parallelogram. So the formula for the area is the formula for the area of a parallelogram divided by 2.

# Student Workbook Answers

## 4.2 Practice

1.  $18 \text{ ft}^2$     2.  $35 \text{ cm}^2$     3.  $70 \text{ m}^2$     4.  $60 \text{ in.}^2$

5. The area of a triangle is one-half the product of its base and its height, not the product of its base and its height.

$$A = \frac{1}{2}(20)(9) = 90 \text{ ft}^2$$

6. Area of first triangle:  $36 \text{ mm}^2$   
 Area of second triangle:  $36 \text{ mm}^2$   
 The areas are the same.

7. two times greater

## 4.2 Extension Practice

1.  $43 \text{ units}^2$     2.  $42 \text{ units}^2$     3.  $34 \text{ units}^2$     4.  $56 \text{ units}^2$

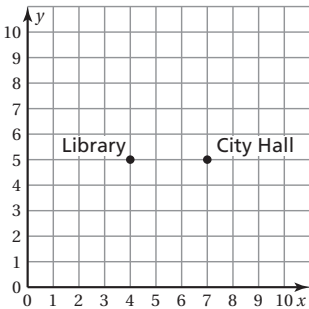
5.  $46 \text{ ft}^2$     6.  $24 \text{ m}^2$     7.  $180 \text{ yd}^2$     8.  $20 \text{ mm}^2$

9.  $49 \text{ in.}^2$     10.  $30 \text{ m}^2$     11.  $10.5 \text{ km}^2$     12.  $78 \text{ ft}^2$

13.  $30 \text{ mm}^2$     14.  $140 \text{ yd}^2$     15.  $52 \text{ mi}^2$     16.  $209 \text{ cm}^2$

## 4.3 Activity

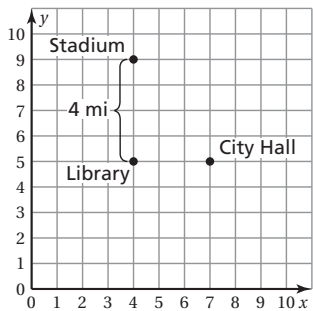
1. a.



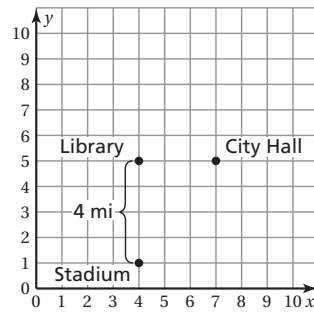
- b. 3 miles

- c. *Sample answers:*

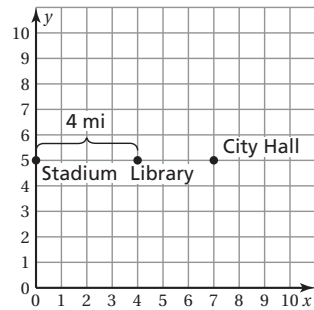
**Location 1:** (4, 9)



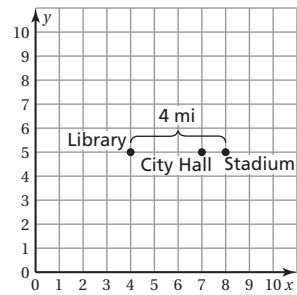
**Location 2:** (4, 1)



**Location 3:** (0, 5)

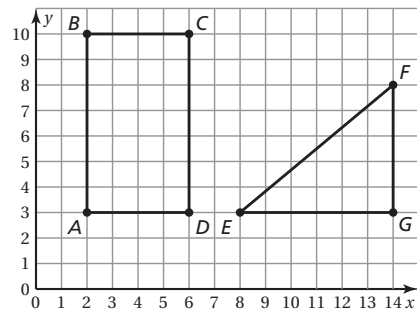


**Location 4:** (8, 5)



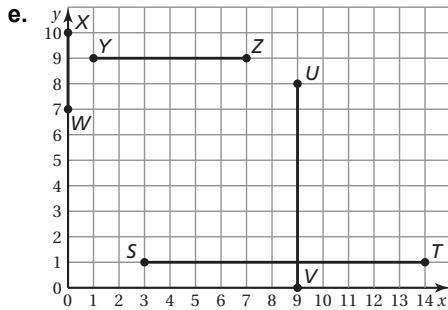
- d. *Sample answers:* **Location 1:** triangle;  
**Location 2:** triangle; **Location 3:** line segment;  
**Location 4:** line segment

- 2.



# Student Workbook Answers

3. a.  $AD = 4$  units,  $BC = 4$  units,  $EG = 6$  units  
 b. The lengths are equal to the difference of the  $x$ -coordinates.  
 c.  $AB = 7$  units,  $CD = 7$  units,  $FG = 5$  units  
 d. The lengths are equal to the difference of the  $y$ -coordinates.



Difference of  $x$ -coordinates:

$$ST = 14 - 3 = 11 \text{ units}$$

Difference of  $y$ -coordinates:

$$UV = 8 - 0 = 8 \text{ units}$$

Difference of  $y$ -coordinates:

$$WX = 10 - 7 = 3 \text{ units}$$

Difference of  $x$ -coordinates:

$$YZ = 7 - 1 = 6 \text{ units}$$

- f.  $ST = 11$  units,  $UV = 8$  units,  
 $WX = 3$  units,  $YZ = 6$  units

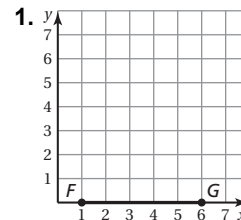
4. *Sample answer:* For vertical and horizontal line segments, you can count the grid lines between the endpoints of each line segment.

You can also do the following. When the  $x$ -coordinates are the same, the vertical distance between the points is the difference of the  $y$ -coordinates. When the  $y$ -coordinates are the same, the horizontal distance between the points is the difference of the  $x$ -coordinates.

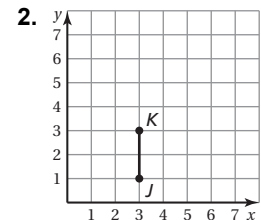
5. no; For a diagonal line segment, you cannot count grid lines between the endpoints because the line segment does not lie on a grid line. Also, because the  $x$ -coordinates are not the same, you cannot compute the distance as the difference of the  $y$ -coordinates. Similarly, because the  $y$ -coordinates are not the same, you cannot compute the distance as the difference of the  $x$ -coordinates.

6. a. *Sample answer:* An archaeologist may use a coordinate grid to mark locations at a dig site where artifacts are found.  
 b. *Sample answer:* A surveyor may use the Global Positioning System (GPS) to establish and locate land positions. GPS uses latitude and longitude, which are similar to a coordinate plane.  
 c. *Sample answer:* A pilot may use a GPS receiver to help during a flight. GPS uses latitude and longitude, which are similar to a coordinate plane.

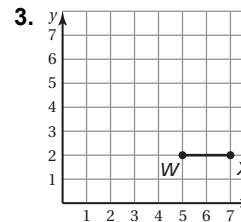
## 4.3 Practice



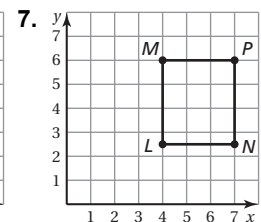
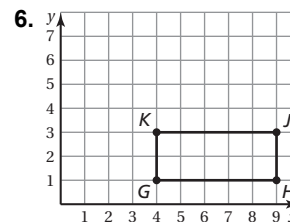
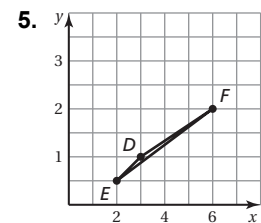
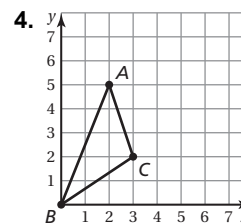
5 units



2 units



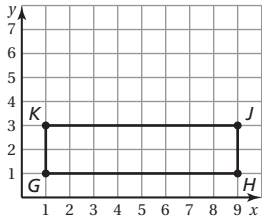
2 units



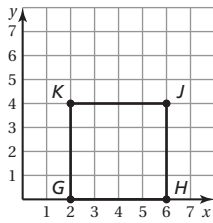
8. 18 units; 14 units<sup>2</sup>      9. 16 units; 16 units<sup>2</sup>  
 10. a. triangle    b. 16 yd<sup>2</sup>

# Student Workbook Answers

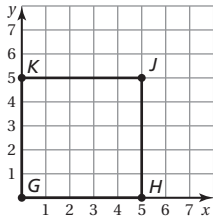
11. *Sample answer:*



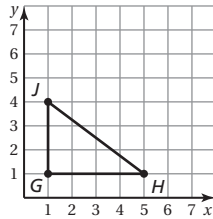
12. *Sample answer:*



13. *Sample answer:*



14. *Sample answer:*



15.  $D(10, 2)$ ;  $E(6, 10)$

## Chapter 5

### 5.1 Activity

1. 5; 7; 7; 5; 4; 7; 5; 4; 7; 16;  $\frac{5}{16}$

2. a. Check students' work.

b. Check students' work. Note that students may write fractions here.

c. Check students' work.

3. a. There are 4 parts blue for every 3 parts green.

b. There are 2 parts orange for every 3 parts yellow.

c. There are 4 parts red for every 2 parts blue.

d. There is 1 part white for every 5 parts purple.

4. a. *Sample answer:*

Boys

Girls

b. *Sample answer:*

Brian

Sasha

c. *Sample answer:*

Cars

Trucks

d. *Sample answer:*

Aloe

Distilled water

5. *Sample answer:* You can use a written statement that uses phrases such as "for every," "to," or "for each." You can also use concrete models or tape diagrams.

6. 30 pints of red paint, 18 pints of white paint;  
*Sample answers:* One way of using a diagram is to keep adding to each part of the diagram until you have a total of 48 pints.

### 5.1 Practice

1. 2 to 3, 2 : 3; There are 2 flies for every 3 lizards.

2. 2 to 5, 2 : 5; There are 2 cars for every 5 trucks.

3. 9 to 3, 9 : 3; There are 9 notebooks for every 3 pencils.

4. 5 to 6, 5 : 6; There are 5 hamburgers for every 6 hot dogs.

5. 2 to 5, 2 : 5; There are 2 tubas for every 5 flutes.

6. 3 to 2, 3 : 2; There are 3 trumpets for every 2 tubas.

7. 5 to 2, 5 : 2; There are 5 flutes for every 2 tubas.

8. 3 to 5, 3 : 5; There are 3 trumpets for every 5 flutes.

9. 15 bird houses

10. 30 bird houses

11. 3 to 96

12. 6 pieces

13. a. 95 students    b. 266 students

c. 418 students    d. 722 students

14. 48 min

### 5.2 Activity

1. a. 4; 1; 3

b. *Sample answer:* Each time another cup of lemonade is added to the mixture, 3 cups of iced tea are added.

Cups of Lemonade	1	2	3	4	5	6	7	8
Cups of Iced Tea	3	6	9	12	15	18	21	24
Total Cups	4	8	12	16	20	24	28	32