Name: _____ Date: _____

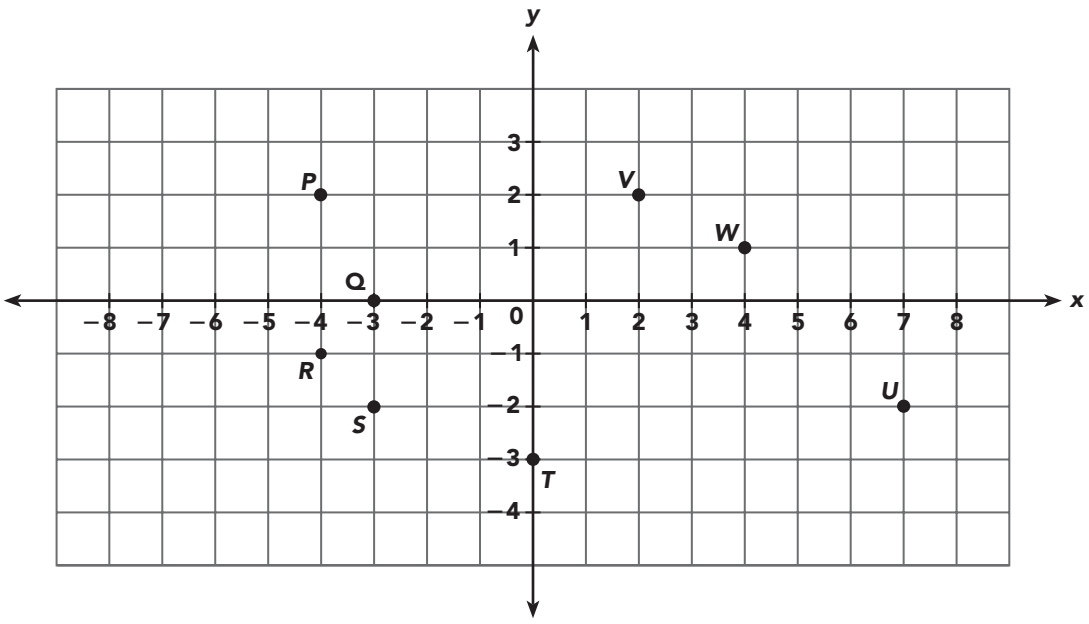
CHAPTER

9 The Coordinate Plane

Lesson 9.1 Points on the Coordinate Plane

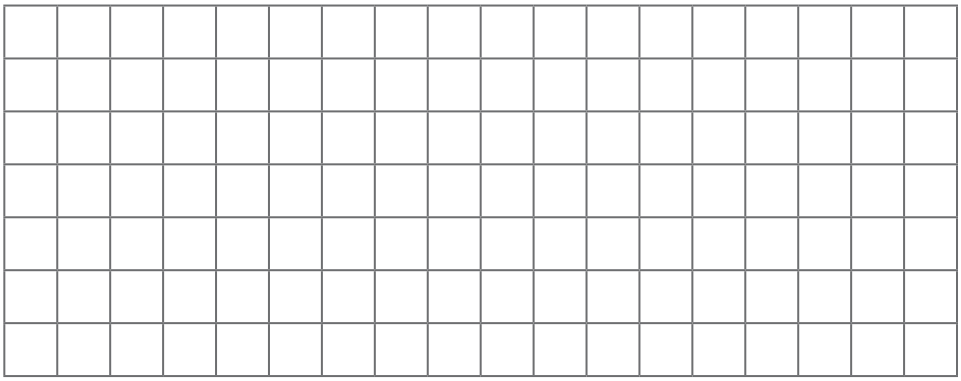
Use the coordinate plane below.

1. Give the coordinates of each point.



Plot the points on the coordinate plane below. In which quadrant is each point located?

2. *S* (3, 2), *T* (0, −1), *U* (−4, −2), *V* (4, 0), *W* (−2, 1), and *Z* (2, −2)



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Points *R* and *S* are reflections of each other about the *y*-axis. Use the coordinate plane below. Give the coordinates of point *S* if the coordinates of point *R* are the following:

3. (3, 9) _____

4. (−7, 4) _____

5. (−5, −6) _____

6. (8, −2) _____

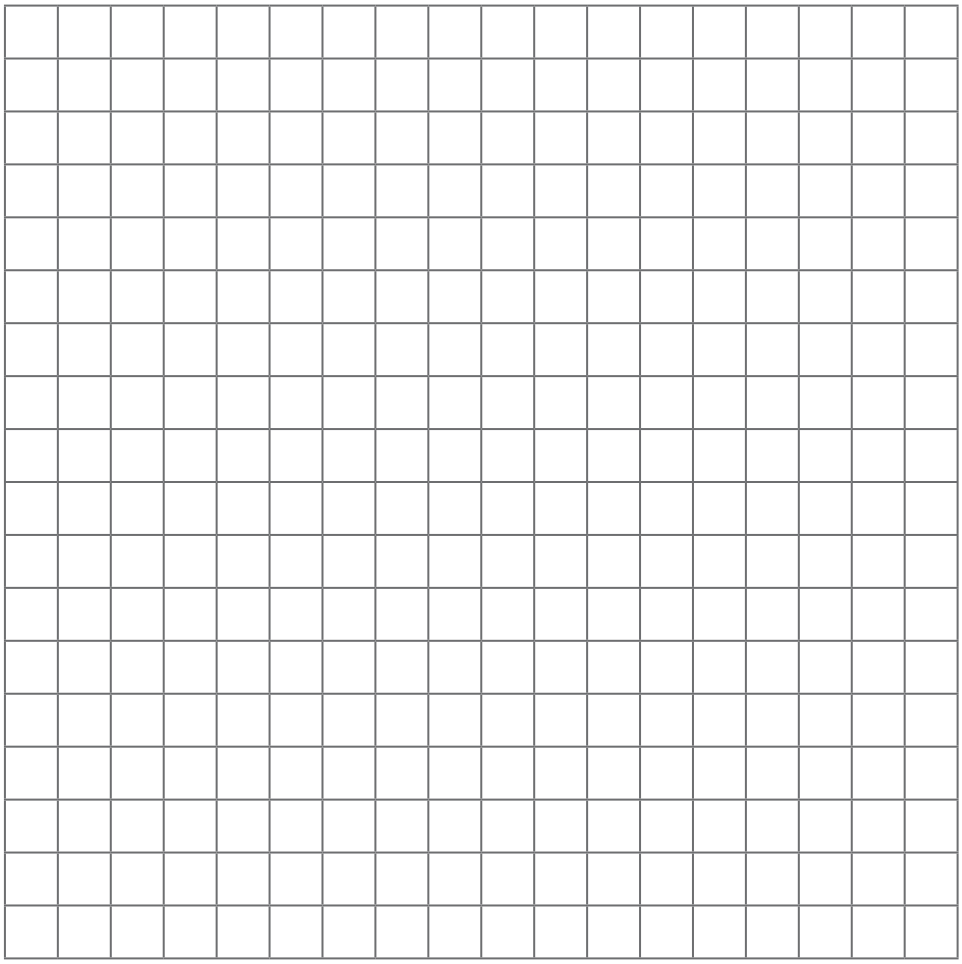
Points *P* and *Q* are reflections of each other about the *x*-axis. Use the coordinate plane below. Give the coordinates of point *Q* if the coordinates of point *P* are the following:

7. (3, 9) _____

8. (−7, 4) _____

9. (−5, −6) _____

10. (8, −2) _____



Name: _____ Date: _____

About which axis are the following coordinates reflections of each other?

11. (−2, 0) and (2, 0)

_____

12. (−8, −8) and (−8, 8)

_____

For each exercise, plot the given points on a coordinate plane. Then join the points in order with line segments to form a closed figure. Name each figure formed.

13. *A* (−3, −1), *B* (3, −1), *C* (3, 5), and *D* (−3, 5)

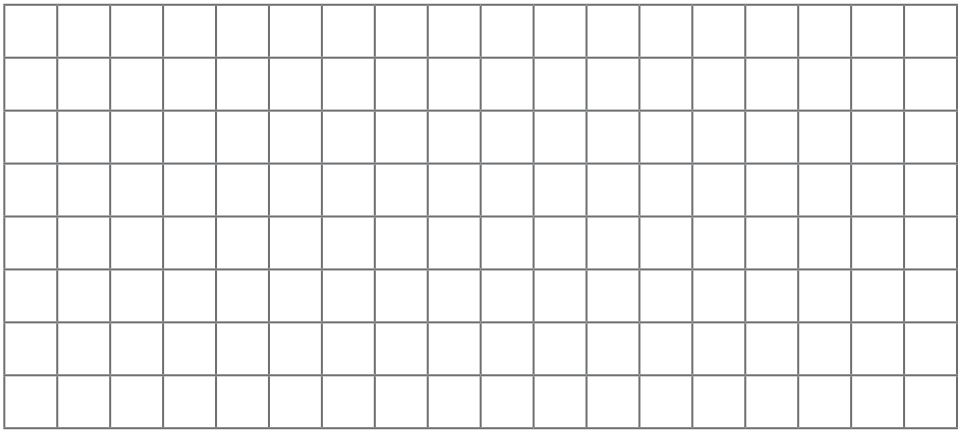


Figure formed: _____

14. *A* (0, 4), *B* (2, −2), and *C* (5, 1)

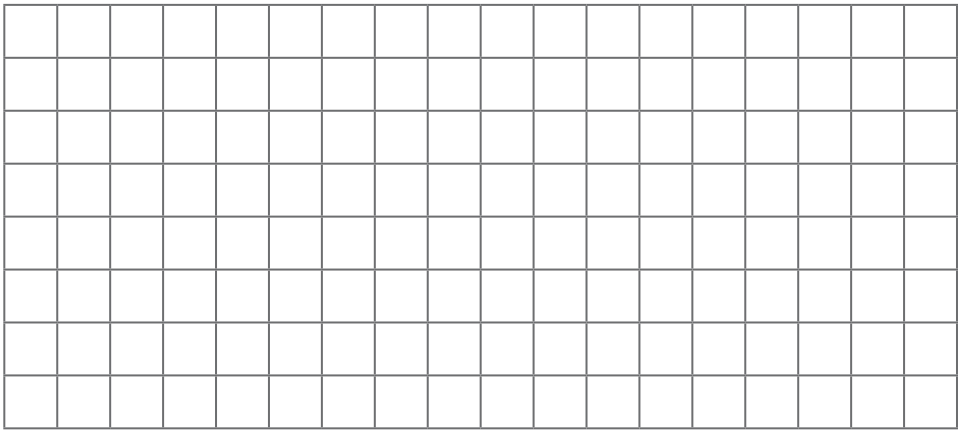


Figure formed: _____

Name: _____ Date: _____

15. P (0, 0), Q (4, 3), R (3, 6), and S (−1, 3)

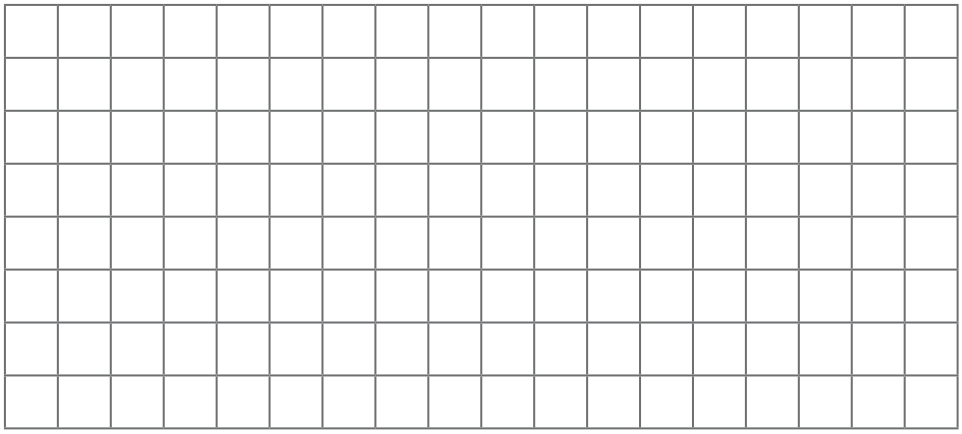


Figure formed: _____

16. P (1, −2), Q (3, 2), R (−4, 2), and S (−2, −2)

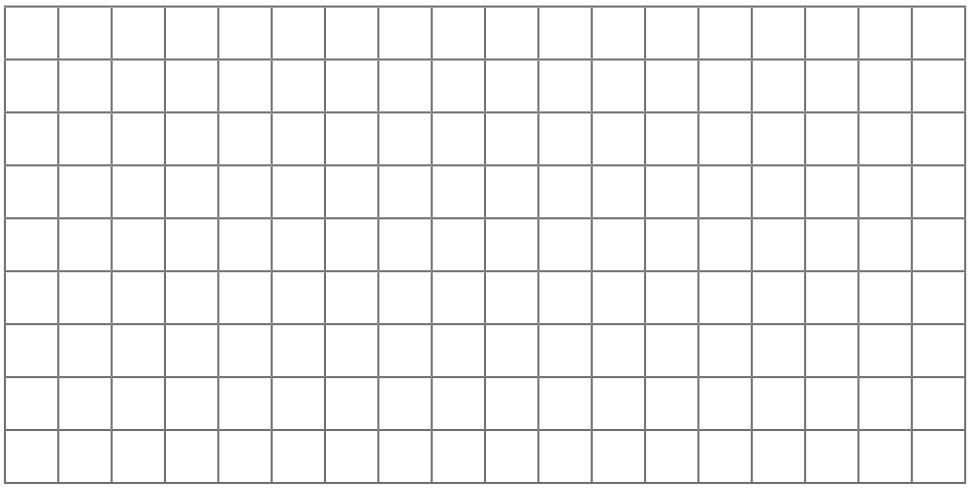
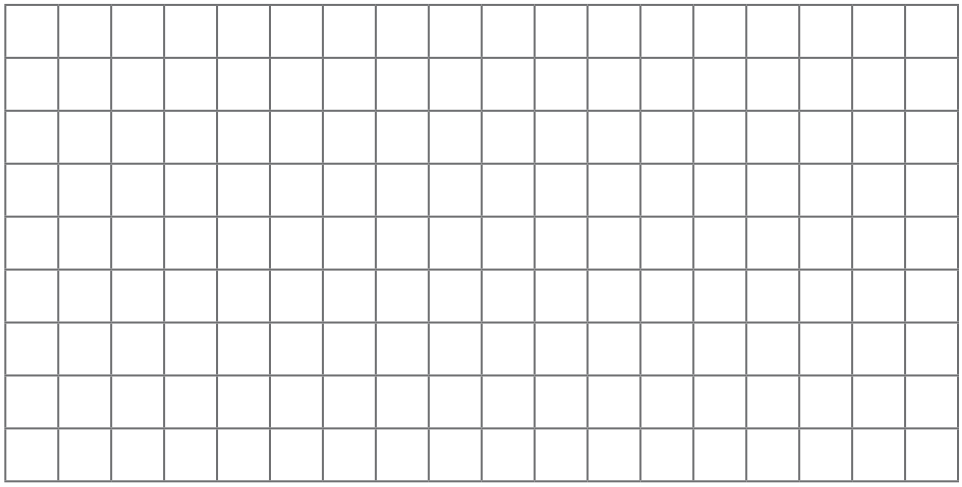


Figure formed: _____

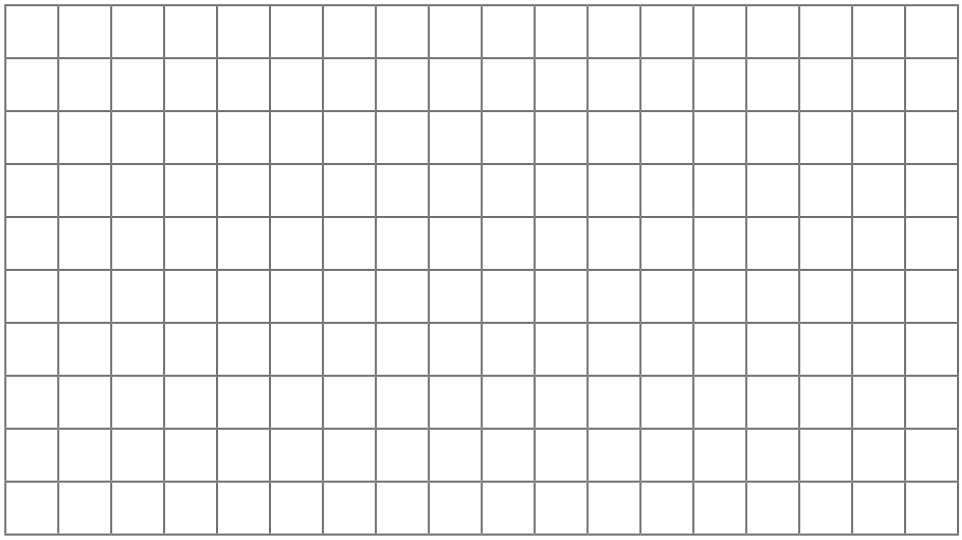
Name: _____ Date: _____

Plot the points on a coordinate plane and answer each question.

17. **a)** Plot points P (−3, 0), R (1, −2), and S (0, 1).
b) Figure $PQRS$ is a square. Plot point Q and give its coordinates.
c) Figure $PRST$ is a parallelogram. Plot point T above $\overline{PS}$ and give its coordinates.



18. **a)** Plot points A (−2, −3), B (4, −3), and C (1, 4)
b) What kind of triangle is triangle ABC?
c) Figure $ABCD$ is a parallelogram. Plot point D and give its coordinates.



Lesson 8.4

1. $2x = 48$
$x = 24$
The number is 24.

2. $b - 28 = 35$
$b = 35 + 28$
$b = 63$
There were 63 novels in the school library at first.

3. $\frac{3}{5}s = 24$
$\frac{1}{5}s = 8$
$s = 40$
There are 40 participants in the swimming class.

4. $5h < 42$
$h < 8.4$
$h = 8$
Claire completes 8 laps.

5. $8c \leq 60$
$c \leq 7.5$
$c = 7$
The box can hold 7 bundles of comic books.

6. $3y - 8 = 16$
$3y = 16 + 8$
$y = 8$

7. $4k - k = 117$
$3k = 117$
$k = 39$

8. In 4 years' time, Shauna will be $(d + 4)$ years old and Jason will be $(3d + 4)$ years old.
$d + 4 + 3d + 4 = 56$
$4d + 8 = 56$
$4d = 48$
$d = 12$ (Shauna)
$3d = 3 \cdot 12 = 36$ (Jason)
Shauna is 12 years old and Jason is 36 years old.

9. If x dollars is the price of each hat, then each T-shirt costs $(x + 3)$ dollars.
$6x + 7(x + 3) = 86$
$6x + 7x + 21 = 86$
$13x + 21 - 21 = 86 - 21$
$13x = 65$
$x = 5$ (hat)
$x + 3 = 8$ (T-shirt)
Mrs. Jones pays \$5 for a hat and \$8 for a T-shirt.

10. Let y the number of teachers needed
$15y \geq 100$
$y \geq 6\frac{2}{3}$
$y = 7$
7 teachers are needed.

11. Let x be the number of Karen's lawn chairs.
$x + 2x + x + 3 = 25$
$4x + 3 = 25$
$4x = 28$
$x = 7$
Karen has 7 lawn chairs.

12. Let y be the number of dimes Jared has.
$0.1y + 0.25(y + 8) = 5.5$
$0.1y + 0.25y + 2 = 5.5$
$0.35y + 2 = 5.5$
$0.35y = 3.5$
$y = 10$
Jared has 10 dimes.

Brain @ Work

1. If c is Montell's present age, then his mother is $(c + 30)$.
In 5 years, Montell will be $(c + 5)$ years old and his mother will be $(c + 35)$ years old.
$3(c + 5) = c + 35$
$3c + 15 = c + 35$
$3c + 15 - 15 = c + 35 - 15$
$3c = c + 20$
$3c - c = c - c + 20$
$2c = 20$
$c = 10$ (Montell)
$10 + 30 = 40$
Montell's mother is 40 years old now.

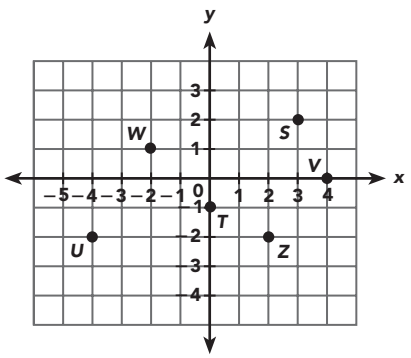
2. If w inches is the width, then the length is $2w$ inches.
The perimeter of the rectangle is $(w + 2w + w + 2w) = 6w$ inches.
$6w < 74$
$w < 12\frac{1}{3}$
Its maximum width is 12 inches.

Chapter 9

Lesson 9.1

1. $P(-4, 2)$ $Q(-3, 0)$
$R(-4, -1)$ $S(-3, -2)$
$T(0, -3)$ $U(7, -2)$
$V(2, 2)$ $W(4, 1)$

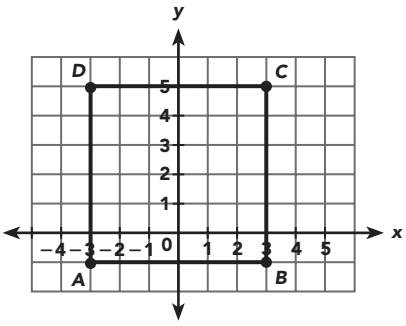
2.



Quadrant I: point *S*
Quadrant II: point *W*
Quadrant III: point *U*
Quadrant IV: point *Z*
Point *T* lies on the *y*-axis between Quadrant III and Quadrant IV.
Point *V* lies on the *x*-axis between Quadrant I and Quadrant IV.

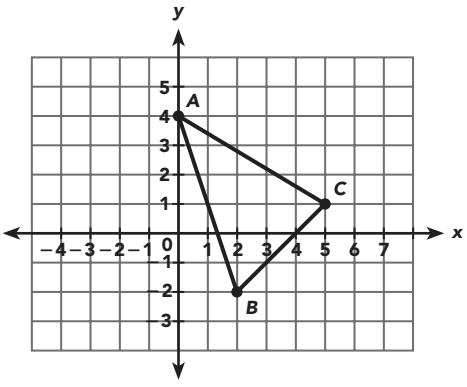
3. (−3, 9)
4. (7, 4)
5. (5, −6)
6. (−8, −2)
7. (3, −9)
8. (−7, −4)
9. (−5, 6)
10. (8, 2)
11. *y*-axis
12. *x*-axis

13.



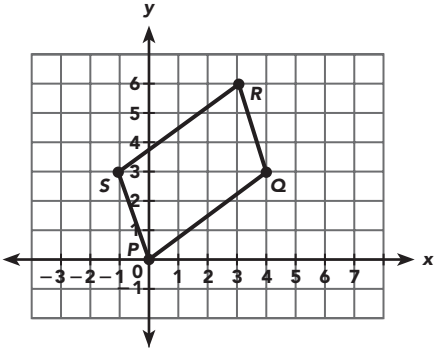
The figure formed is a square.

14.



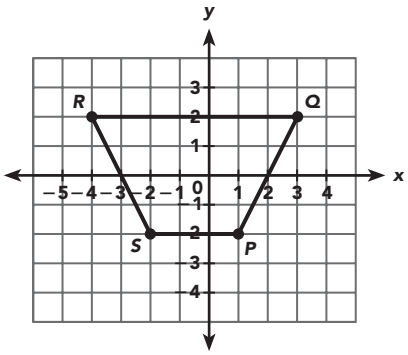
The figure formed is a triangle.

15.



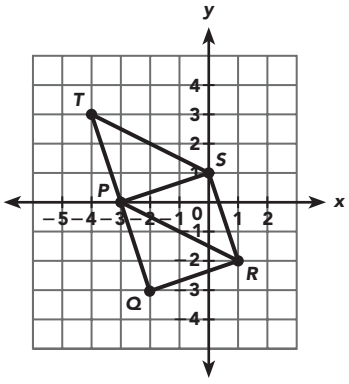
The figure formed is a parallelogram.

16.



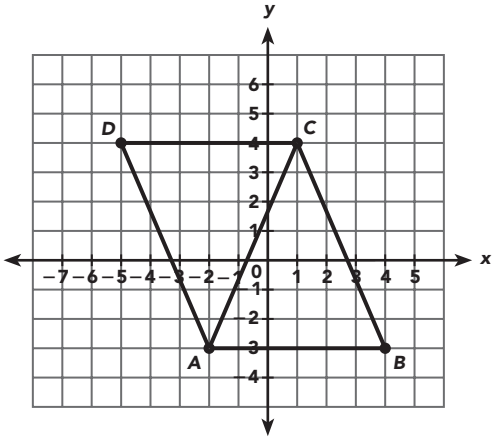
The figure formed is a trapezoid.

17. a)



b) *Q* (−2, −3)
c) *T* (−4, 3)

18. a)



b) isosceles
c) *D* (−5, 4)

Lesson 9.2

1. *AB* = 5 units
2. *CD* = 7 units
3. *EF* = 6 units
4. *GH* = 6 units
5. *JK* = 5 units