

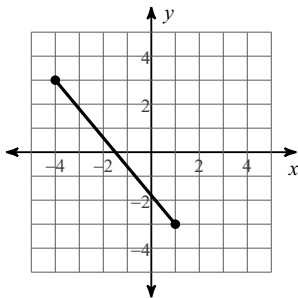
Unit 1: Distance & Midpoint Formulas

Find the distance between each pair of points. Round your answer to the nearest tenth, if necessary.

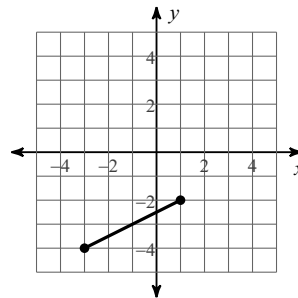
1) $(12, 2), (5, -11)$

2) $(-1, -1), (-7, -10)$

3)



4)



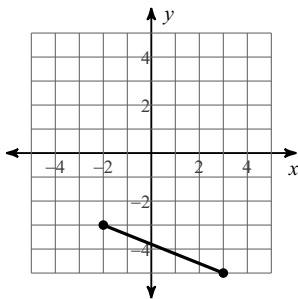
Find the midpoint of the line segment with the given endpoints.

5) $(-4, -9), (-10, 0)$

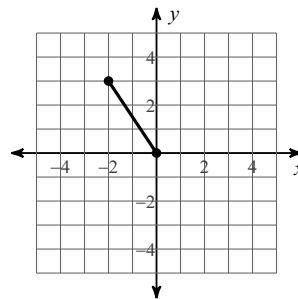
6) $(1, -12), (-12, 13)$

Find the midpoint of each line segment.

7)



8)



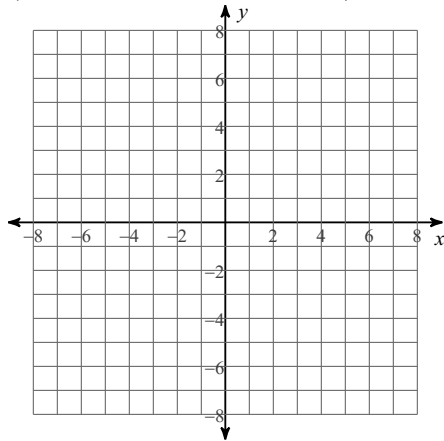
Find the other endpoint of the line segment with the given endpoint and midpoint.

9) Endpoint: $(4, 12)$, midpoint: $(-11, 4)$

10) Endpoint: $(1, -13)$, midpoint: $(-3, 3)$

Applications of the Distance and Midpoint Formulas

- 11) \overline{PQ} is the diameter of a circle. The coordinates of P are $(5, -11)$ and the coordinates of Q are $(12, -7)$. Find the center of the circle.
- 12) A boat at $X(5, -2)$ needs to travel to $Y(-6, 9)$ or $Z(17, -3)$. Which point is closer? What is the distance to the closer point? (round to the nearest hundredth)
- 13) Quadrilateral $PQSR$ has the following coordinates: $P(0, 0)$, $Q(-1, 4)$, $R(8, 2)$, and $S(7, 6)$. Graph the quadrilateral $PQSR$ and find the perimeter and the midpoint of \overline{QR} . (round to the nearest tenth)



- 14) Two news helicopters are flying at the same altitude on their way to a college football game. Helicopter A is 20 mi due west of the game. Helicopter B is 15 mi south and 15 mi east of the game.
- A) How far apart are the helicopters?
B) How far from the game is each helicopter?
C) Both helicopters are flying at an average speed of 80 mi/h. How many minutes will it take each of them to arrive at the game?
- 15) Find the possible values of a if points $C(1, -3)$ and $D(a, 21)$ are a distance of 25 units apart.

Unit 1: Distance & Midpoint Formulas

Date _____ Period _____

Find the distance between each pair of points. Round your answer to the nearest tenth, if necessary.

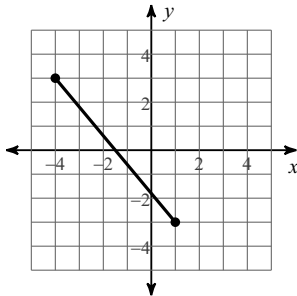
1) $(12, 2), (5, -11)$

14.8

2) $(-1, -1), (-7, -10)$

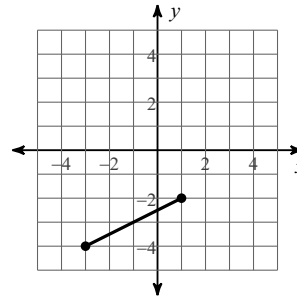
10.8

3)



7.8

4)



4.5

Find the midpoint of the line segment with the given endpoints.

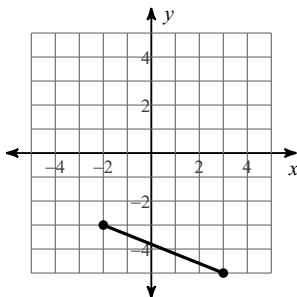
5) $(-4, -9), (-10, 0)$

 $(-7, -4.5)$

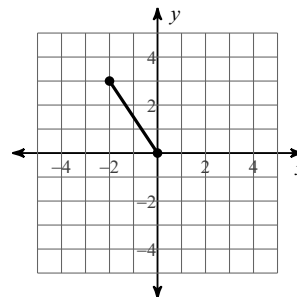
6) $(1, -12), (-12, 13)$

 $(-5.5, 0.5)$ **Find the midpoint of each line segment.**

7)

 $(0.5, -4)$

8)

 $(-1, 1.5)$ **Find the other endpoint of the line segment with the given endpoint and midpoint.**

9) Endpoint: $(4, 12)$, midpoint: $(-11, 4)$

 $(-26, -4)$

10) Endpoint: $(1, -13)$, midpoint: $(-3, 3)$

 $(-7, 19)$

Applications of the Distance and Midpoint Formulas

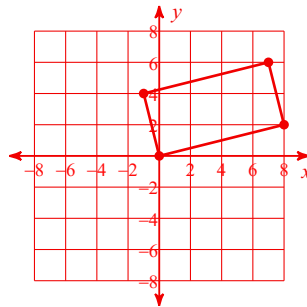
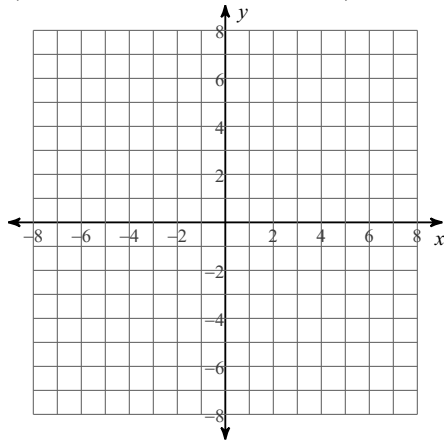
- 11) \overline{PQ} is the diameter of a circle. The coordinates of P are $(5, -11)$ and the coordinates of Q are $(12, -7)$. Find the center of the circle.

$(8.5, -9)$

- 12) A boat at $X(5, -2)$ needs to travel to $Y(-6, 9)$ or $Z(17, -3)$. Which point is closer? What is the distance to the closer point? (round to the nearest hundredth)

Point Z; 12.04 units

- 13) Quadrilateral $PQSR$ has the following coordinates: $P(0, 0)$, $Q(-1, 4)$, $R(8, 2)$, and $S(7, 6)$. Graph the quadrilateral $PQSR$ and find the perimeter and the midpoint of \overline{QR} . (round to the nearest tenth)



perimeter is 24.7 and midpoint is $(3.5, 3)$

- 14) Two news helicopters are flying at the same altitude on their way to a college football game. Helicopter A is 20 mi due west of the game. Helicopter B is 15 mi south and 15 mi east of the game.
- How far apart are the helicopters?
 - How far from the game is each helicopter?
 - Both helicopters are flying at an average speed of 80 mi/h. How many minutes will it take each of them to arrive at the game?

A) 38.1 mi,

B) 20 mi for helo A and 21.2 mi for helo B,

C) 15 min for helo A and 16 min for helo B

- 15) Find the possible values of a if points $C(1, -3)$ and $D(a, 21)$ are a distance of 25 units apart.

a is either -6 or 8