

1-7

Practice

Form K

Midpoint and Distance in the Coordinate Plane

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

1. 9 and 6 To start, write the Midpoint Formula. Let $a = 9$ and $b = 6$.

The coordinate of the midpoint is $\frac{a+b}{2} = \frac{\square + \square}{2} = \square$.

2. -2 and 7 3. -3 and -13 4. -8 and 12

Find the coordinates of the midpoint of \overline{LM} .

5. $L(0, 0), M(9, 3)$ Use the Midpoint Formula.

x-coordinate of midpoint is $\frac{x_1 + x_2}{2} = \frac{\square + \square}{2} = \square$

coordinate of midpoint is $\frac{y_1 + y_2}{2} = \frac{\square + \square}{2} = \square$

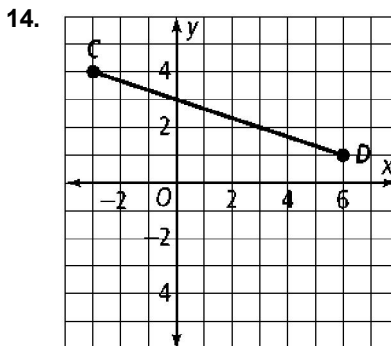
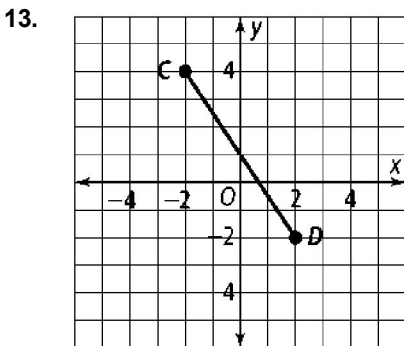
The coordinates of the midpoint are (\square, \square) .

6. $L(2, -1), M(3, 6)$ 7. $L(-3, 14), M(10, -4)$
 8. $L(-7, -4), M(5, -10)$ 9. $L(9\frac{1}{2}, -2\frac{1}{4}), M(-3\frac{3}{4}, 1\frac{1}{2})$

The coordinates of point S are given. The midpoint of \overline{RS} is $(6, -10)$. Find the coordinates of point R .

10. $S(0, 8)$ 11. $S(9, -3)$ 12. $S(-2, -7)$

For each graph, find the coordinates of the midpoint of \overline{CD} .



1-7

Practice (continued)

Form K

Midpoint and Distance in the Coordinate Plane

Find the distance between each pair of points. If necessary, round to the nearest tenth.

15. $K(0, 5), L(7, 9)$

Write the Distance Formula.

Substitute $(0, 5)$ for (x_1, y_1) and $(7, 9)$ for (x_2, y_2) .

$$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2} = \sqrt{(7 - \square)^2 + (9 - \square)^2} = \square$$

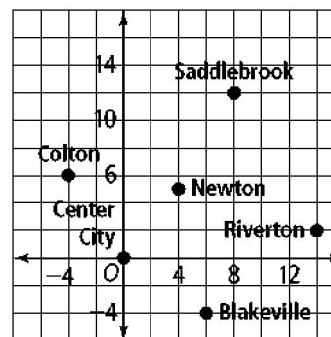
16. $C(-2, 6), D(10, -8)$

17. $W(-3, -5), X(-9, 4)$

18. $G(-12, -11), H(5, -9)$

19. $A(6, 2), B(-3, -1)$

For Exercises 20–24, use the map at the right. The units of the map are in miles. Find the distance between the cities to the nearest tenth.



20. Colton and Riverton

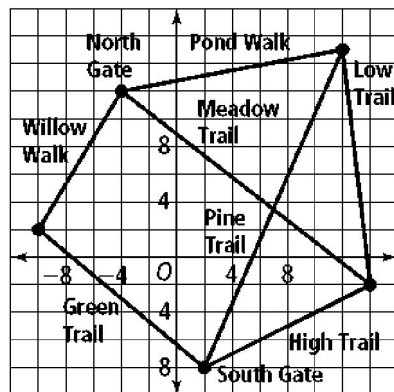
21. Saddlebrook and Riverton

22. Saddlebrook and Colton

23. Blakeville and Newton

24. List the cities in order of greatest to least distance from Center City.

The units of the trail map at the right are in kilometers. Suppose the trails are straight. Find the distance you would travel along each trail to the nearest tenth of a kilometer.



25. Low Trail

26. Willow Walk

27. Pond Walk

28. Meadow Trail

29. Starting at South Gate, you walk to North Gate on Green Trail and Willow Walk. How much farther would you have to walk if you took High Trail to Meadow Trail?

1-7

Practice

Form K

Midpoint and Distance in the Coordinate Plane

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

1. 9 and 6 To start, write the Midpoint Formula. Let $a = 9$ and $b = 6$.

$$\text{The coordinate of the midpoint is } \frac{a + b}{2} = \frac{\boxed{9} + \boxed{6}}{2} = \boxed{7.5}.$$

2. -2 and 7 **2.5** 3. -3 and -13 **-8** 4. -8 and 12 **2**

Find the coordinates of the midpoint of \overline{LM} .

5. $L(0, 0)$, $M(9, 3)$ Use the Midpoint Formula.

$$x\text{-coordinate of midpoint is } \frac{x_1 + x_2}{2} = \frac{\boxed{0} + \boxed{9}}{2} = \boxed{4.5}$$

$$y\text{-coordinate of midpoint is } \frac{y_1 + y_2}{2} = \frac{\boxed{0} + \boxed{3}}{2} = \boxed{1.5}$$

$$\text{The coordinates of the midpoint are } (\boxed{4.5}, \boxed{1.5}).$$

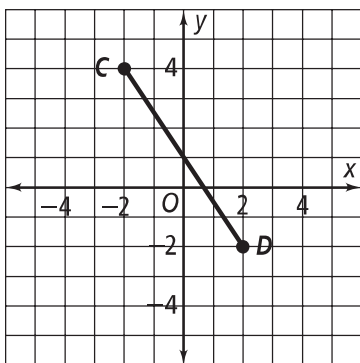
6. $L(2, -1)$, $M(3, 6)$ **(2.5, 2.5)** 7. $L(-3, 14)$, $M(10, -4)$ **(3.5, 5)**
 8. $L(-7, -4)$, $M(5, -10)$ **(-1, -7)** 9. $L(9\frac{1}{2}, -2\frac{1}{4})$, $M(-3\frac{3}{4}, 1\frac{1}{2})$ **(2\frac{7}{8}, -\frac{3}{8})**

The coordinates of point S are given. The midpoint of \overline{RS} is $(6, -10)$. Find the coordinates of point R .

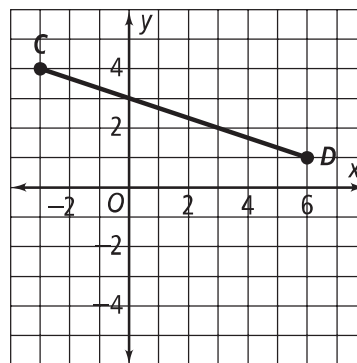
10. $S(0, 8)$ **(12, -28)** 11. $S(9, -3)$ **(3, -17)** 12. $S(-2, -7)$ **(14, -13)**

For each graph, find the coordinates of the midpoint of \overline{CD} .

13. **(0, 1)**



14. **(1.5, 2.5)**



1-7

Practice (continued)

Form K

Midpoint and Distance in the Coordinate Plane

Find the distance between each pair of points. If necessary, round to the nearest tenth.

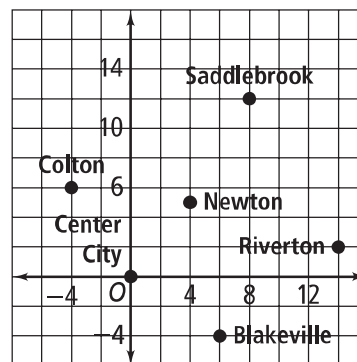
15. $K(0, 5), L(7, 9)$ Write the Distance Formula.

Substitute $(0, 5)$ for (x_1, y_1) and $(7, 9)$ for (x_2, y_2) .

$$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2} = \sqrt{(7 - \boxed{0})^2 + (9 - \boxed{5})^2} = \boxed{8.1}$$

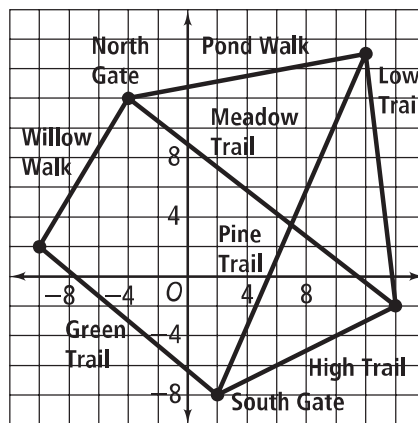
16. $C(-2, 6), D(10, -8)$ **18.4** 17. $W(-3, -5), X(-9, 4)$ **10.8**
 18. $G(-12, -11), H(5, -9)$ **17.1** 19. $A(6, 2), B(-3, -1)$ **9.5**

For Exercises 20–24, use the map at the right. The units of the map are in miles. Find the distance between the cities to the nearest tenth.



20. Colton and Riverton **18.4 mi**
 21. Saddlebrook and Riverton **11.7 mi**
 22. Saddlebrook and Colton **13.4 mi**
 23. Blakeville and Newton **9.2 mi**
 24. List the cities in order of greatest to least distance from Center City.
Saddlebrook, Riverton, Blakeville and Colton, Newton

The units of the trail map at the right are in kilometers. Suppose the trails are straight. Find the distance you would travel along each trail to the nearest tenth of a kilometer.



25. Low Trail **17.1 km**
 26. Willow Walk **11.7 km**
 27. Pond Walk **16.3 km**
 28. Meadow Trail **22.8 km**
 29. Starting at South Gate, you walk to North Gate on Green Trail and Willow Walk. How much farther would you have to walk if you took High Trail to Meadow Trail? **8.9 km**