



TABE

MATH - D

Unit - 1

Lesson - 6

Coordinate Plane

X – Y Axis

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Nolan Tombouliau

Lesson 6

Absolute Value on the Coordinate Plane

6.NS.8 -- Low

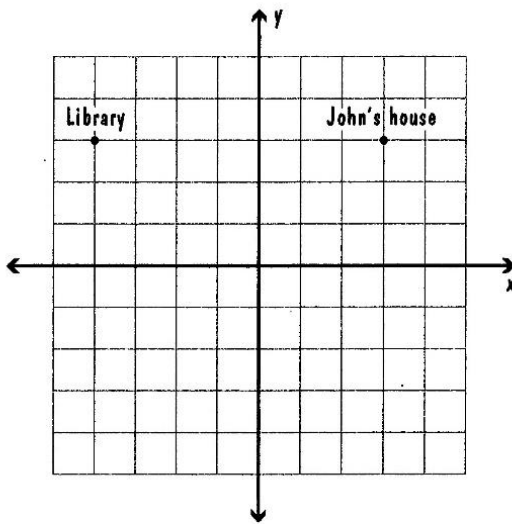
An ordered pair (x, y) has two coordinates. The first number in an ordered pair is the x -coordinate. The second number in an ordered pair is the y -coordinate.

You can use absolute value to find the distance between points with the same x -coordinate or the same y -coordinate.

Example On the coordinate plane, each unit is equal to 1 mile. What is the distance between John's house and the Library?

- 1) Determine the coordinates of John's house, $(3, 3)$
- 2) Determine the coordinates of the Library, $(-4, 3)$
- 3) Since John's house and the Library have common y values, find the absolute value of the difference between the x values:
 $|3 - (-4)| = |7| = 7$.

The distance between John's house and the Library is 7 miles.



Hint

A negative multiplied by a negative equals a positive. For example, $-(-4) = +4$.

Strategy

Find the absolute value of the difference between the x - or y -values that are NOT the same.

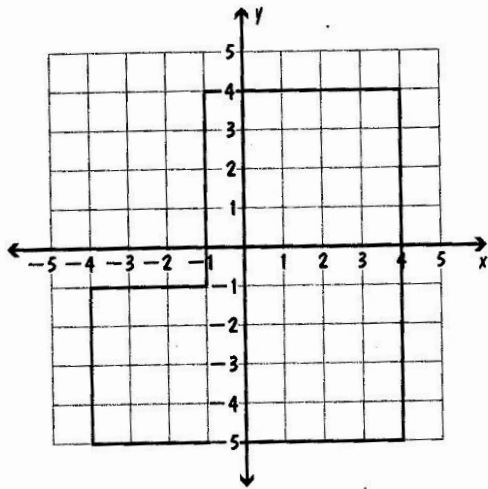
1. Which of the following pairs of points have a distance of 10 units between them?
 - A. $(4, -7)$ and $(4, 2)$
 - B. $(-4, 9)$ and $(6, 9)$
 - C. $(3, 8)$ and $(3, -1)$
 - D. $(2, 6)$ and $(-9, 6)$

1. **B** The points $(-4, 9)$ and $(6, 9)$ are 10 units apart because $| -4 - 6 | = | -10 | = 10$.

Practice

Read each question. Select the correct answer.

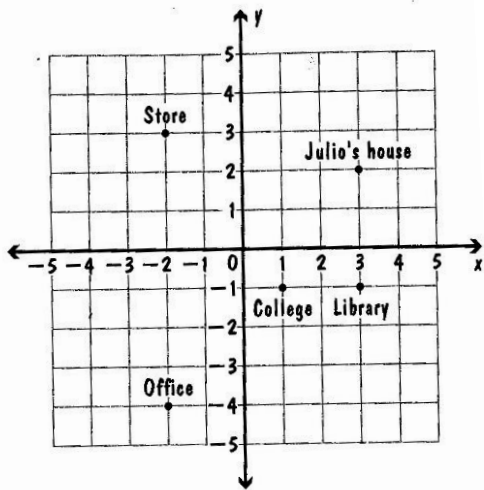
- 1 Kyle wants to build a fence around his property. Each unit represents one yard.



How many yards of fencing does Kyle need?

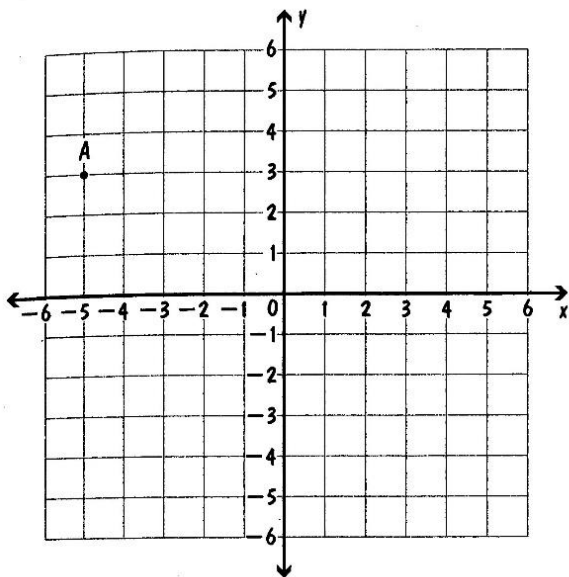
- A. 5 yards
B. 14 yards
C. 22 yards
D. 34 yards
- 2 Point A is located at $(-3, 7)$ on a coordinate plane. Which point is located 8 units from Point A?
- A. $(-3, 8)$
B. $(8, 7)$
C. $(-3, 1)$
D. $(-3, -1)$

Use the graph to answer questions 3–5.



- 3 What is the distance between the Store and the Office?
- A. 2
B. 3
C. 4
D. 7
- 4 What is the distance between Julio's house and the Library?
- A. 4
B. 3
C. 2
D. 1
- 5 What is the distance between the College and the Library?
- A. 1
B. 2
C. 3
D. 4

Use the graph to answer questions 6 and 7.



6 On a coordinate plane, Point A is shown. To get to Point B, move 5 units down and 6 units to the right. What are the coordinates of Point B?

- A. $(-10, 9)$
- B. $(0, 9)$
- C. $(1, -2)$
- D. $(1, 9)$

7 On a coordinate plane, Point A is shown. To get to Point C, move 6 units down and 5 units to the right. What are the coordinates of Point C?

- A. $(8, -3)$
- B. $(0, -3)$
- C. $(8, -8)$
- D. $(0, -8)$

8 What is the distance between $(-5, 4)$ and $(3, 4)$?

- A. 8
- B. 2
- C. 0
- D. -2

9 Which of the following pairs of points have a distance of 9 units between them?

- A. $(1, 2)$ and $(10, 11)$
- B. $(-2, 1)$ and $(-2, 9)$
- C. $(-3, -2)$ and $(6, -2)$
- D. $(4, 2)$ and $(9, 2)$

10 Point Q is located at $(4, -7)$ on the coordinate plane. Which point is 7 units from Point Q?

- A. $(7, -7)$
- B. $(4, 7)$
- C. $(4, 0)$
- D. $(-7, -7)$

11 What is the distance between $(10, 8)$ and $(-3, 8)$?

- A. 2
- B. 7
- C. 13
- D. 16

12 Point C is located at $(-6, 4)$ on a coordinate plane. Which point is located 12 units from Point C?

- A. $(-6, 8)$
- B. $(-6, -8)$
- C. $(-6, 12)$
- D. $(-6, -12)$

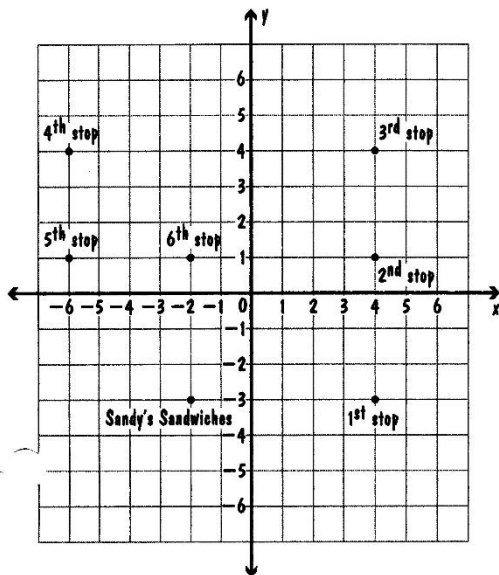
Practice 6

Absolute Value on the Coordinate Plane

6.NS.8 – Low

Use the graph for items 1–3.

A delivery driver has mapped out his route to deliver lunches from Sandy's Sandwiches. Each unit represents one block.



- 1 How many blocks does the delivery driver travel to his first stop from Sandy's Sandwiches?

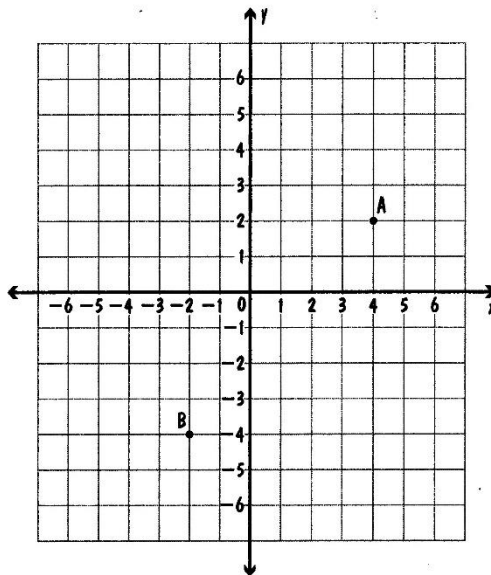
| | |
|-------------|-------------|
| A. 2 blocks | B. 4 blocks |
| C. 6 blocks | D. 8 blocks |
- 2 What is the distance between the driver's first and third stops?

| | |
|-------------|-------------|
| A. 7 blocks | B. 5 blocks |
| C. 4 blocks | D. 3 blocks |
- 3 How many blocks will the delivery driver travel from his fourth stop to his sixth stop and then back to Sandy's Sandwiches?

| | |
|--------------|--------------|
| A. 20 blocks | B. 15 blocks |
| C. 11 blocks | D. 9 blocks |

Use the graph for items 4–6.

Points *A* and *B* are shown on a coordinate plane.



- 4 To get to Point *C*, move seven units up and three units to the left from Point *B*. What are the coordinates of Point *C*?

| | |
|------------|------------|
| A. (5, -1) | B. (1, 3) |
| C. (-5, 3) | D. (3, -5) |
- 5 Point *D* is located at (-2, 2). How many units is Point *D* from Point *A*?

| | |
|-------------|-------------|
| A. 5 units | B. 6 units |
| C. 11 units | D. 12 units |
- 6 Point *E* is located at (4, -4). What is the total distance from Point *A* to Point *E* to Point *B*?

| | |
|-------------|-------------|
| A. 12 units | B. 17 units |
| C. 18 units | D. 19 units |

- 7 Which point is located nine units from the origin, $(0, 0)$?

A. $(0, -3)$ B. $(-9, 0)$
C. $(1, 0)$ D. $(0, 7)$

- 8 What is the distance between $(-2, 4)$ and $(9, 4)$?

A. 7 units B. 11 units
C. 13 units D. 15 units

- 9 Which pair of points has a distance of six units between them?

A. $(-3, 7)$ and $(3, 7)$
B. $(1, 1)$ and $(1, 5)$
C. $(0, 7)$ and $(0, 2)$
D. $(10, 2)$ and $(11, 2)$

- 10 On a coordinate plane, each unit is one mile. What is the distance between the town square located at $(1, -5)$ and the courthouse located at $(1, -9)$?

A. -4 mi B. 0 mi
C. 4 mi D. 7 mi

- 11 Point F is located at $(-4, 7)$ on a coordinate plane. Which point is located 16 units from Point F ?

A. $(-10, 7)$ B. $(0, 7)$
C. $(-4, 22)$ D. $(-4, -9)$

- 12 In a plan to build a horse pen, there are four points that represent corner posts. The coordinates of the points are $(5, -4)$, $(5, 6)$, $(-4, 6)$, and $(-4, -4)$. Each unit is one yard. How many yards of fencing are needed to build the pen?

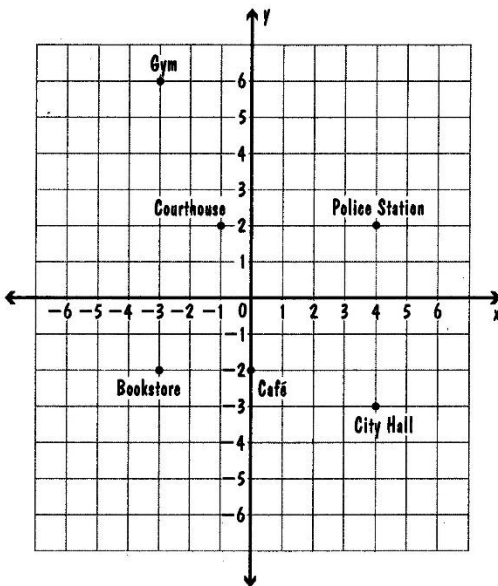
A. 28 yd B. 34 yd
C. 38 yd D. 42 yd

- 13 Point Q is located at $(-11, 2)$ on a coordinate plane. Which point is one unit from Point Q ?

A. $(-11, -1)$ B. $(12, 2)$
C. $(-11, 4)$ D. $(-10, 2)$

Use the graph for items 14–17.

Each unit on the graph represents one mile.



- 14 What is the distance between the Bookstore and the Café?

A. 4 mi B. 3 mi
C. 2 mi D. 1 mi

- 15 What is the distance between City Hall and the Police Station?

A. 5 mi B. 4 mi
C. 3 mi D. 2 mi

- 16 What is the distance from the Courthouse to the Police Station to City Hall?

A. 4 mi B. 6 mi
C. 8 mi D. 10 mi

- 17 What is the distance between the Gym and the Bookstore?

A. 2 mi B. 3 mi
C. 4 mi D. 8 mi

Math-D Lesson-6 Key

Lesson 6

Absolute Value on the Coordinate Plane

(6.NS.8)

1. D. Find the length of each line segment. The distance between $(4, 4)$ and $(4, -5)$ is 9. The distance between $(4, -5)$ and $(-4, -5)$ is 8. The distance between $(-4, -5)$ and $(-4, -1)$ is 4. The distance between $(-4, -1)$ and $(-1, -1)$ is 3. The distance between $(-1, -1)$ and $(-1, 4)$ is 5. The distance between $(-1, 4)$ and $(4, 4)$ is 5. Add the lengths of all of the line segments $(9 + 8 + 4 + 3 + 5 + 5 = 34)$ to find the total yards of fencing needed.
2. D. For each set of coordinate points, find the absolute value of the difference between the coordinate values that differ: $|7 - (-1)| = |8| = 8$.
3. D. The coordinates for the Store and the Office share the same x -value, so find the absolute value of the difference between their y -values: $|3 - (-4)| = |7| = 7$.
4. B. The coordinates for Julio's house and the Library share the same x -value, so find the absolute value of the difference between their y -values: $|2 - (-1)| = |3| = 3$.
5. B. The coordinates for the College and the Library share the same y -value, so find the absolute value of the difference between their x -values: $|1 - 3| = |-2| = 2$.
6. C. A movement to the right is an increase in the value of x , a movement down is a decrease in the value of y . $x = -5 + 6 = 1$; $y = 3 - 5 = -2$.
7. B. A movement to the right is an increase in the value of x , a movement down is a decrease in the value of y . $x = -5 + 5 = 0$; $y = 3 - 6 = -3$.
8. A. The two points share the same y -value, so find the absolute value of the difference between their x -values: $|-5 - 3| = |-8| = 8$.
9. C. Find the absolute value of the difference between the coordinate values that are different. $|-3 - 6| = |-9| = 9$.
10. C. Find the absolute value of the difference between the coordinate values that are different. $|0 - (-7)| = |7| = 7$.
11. C. The two points have the same y -value, so find the absolute value of the difference between their x -values. $|10 - (-3)| = 13$.
12. B. Find the absolute value of the difference between the coordinate values that are different. $|4 - (-8)| = 12$.

Math-D Practice-6 Key

Practice 6

Absolute Value on the Coordinate Plane

pp. 12-13

(6.NS.8)

1. C. The coordinates for Sandy's Sandwiches and the first stop share the same y -value, so find the absolute value of the difference between their x -values: $|-2 - 4| = |-6| = 6$.
2. A. The coordinates for the first and third stop share the same x -value, so find the absolute value of the difference between their y -values: $|-3 - 4| = |-7| = 7$.
3. C. Find the length of each line segment between the stops. The distance between the fourth stop $(-6, 4)$ and the fifth stop $(-6, 1)$ is 3 blocks. The distance between the fifth stop $(-6, 1)$ and the sixth stop $(-2, 1)$ is 4 blocks. The distance between the sixth stop $(-2, 1)$ and Sandy's Sandwiches $(-2, -3)$ is 4 blocks. Add the distances: $3 + 4 + 4 = 11$ blocks.
4. C. A movement to the left is a decrease in the value of x , and a movement up is an increase in the value of y : $x = -2 - 3 = -5$; $y = -4 + 7 = 3$; $(-5, 3)$.
5. B. The two points share the same y -value, so find the absolute value of the difference between their x -values: $|-2 - 4| = |-6| = 6$.
6. A. Find the distances between Points A and E, Points E and B, and then add them together. The distance between Point A $(4, 2)$ and Point E $(4, -4)$ is 6. The distance between Point E $(4, -4)$ and Point B $(-2, -4)$ is 6: $6 + 6 = 12$.
7. B. For each set of coordinate points, find the absolute value of the difference between the coordinate values that differ: $|0 - (-9)| = |9| = 9$.
8. B. The coordinates have the same y -value, so find the absolute value of the difference between their x -values: $|-2 - 9| = |-11| = 11$.
9. A. Find the absolute value of the difference between the coordinate values that are different: $|-3 - 3| = |-6| = 6$.
10. C. The coordinates of the town square and the courthouse share the same x -value, so find the absolute value of the difference between their y -values: $|-5 - (-9)| = |4| = 4$.
11. D. Find the absolute value of the difference between the coordinate values that are different: $|7 - (-9)| = |16| = 16$.
12. C. Find the distance between each post that represents each of the four sides of the pen. The distance between $(5, -4)$ and $(5, 6)$ is 10. The distance between $(5, 6)$ and $(-4, 6)$ is 9. The distance between $(-4, 6)$ and $(-4, -4)$ is 10. The distance between $(-4, -4)$ and $(5, -4)$ is 9. Add the distances: $10 + 9 + 10 + 9 = 38$.
13. D. For each set of coordinate points, find the absolute value of the difference between the coordinate values that differ: $|-11 - (-10)| = |-1| = 1$.
14. B. The coordinates of the Bookstore and the Café share the same y -values, so find the absolute value of the difference of their x -values: $|-3 - 0| = |-3| = 3$ mi.
15. A. The coordinates of City Hall and the Police Station share the same x -values, so find the absolute value of the difference of their y -values: $|-3 - 2| = |-5| = 5$ mi.
16. D. The distance between the Courthouse $(-1, 2)$ and the Police Station $(4, 2)$ is 5. The distance between the Police Station $(4, 2)$ and City Hall $(4, -3)$ is 5. Add the distances: $5 + 5 = 10$ mi.
17. D. The coordinates of the Bookstore and the Gym share the same x -values, so find the absolute value of the difference of their y -values. $|-2 - 6| = |-8| = 8$ mi.