

Coordinate Trail

Plot points in all four quadrants and find horizontal or vertical distances.

GRADE 6 • 6.NS.C.8

CCSS.Math.Content.6.NS.C.8 "Solve real-world and mathematical problems by graphing points in all four quadrants of the coordinate plane. Include use of coordinates and absolute value to find distances between points with the same first coordinate or the same second..."

NAME _____

DATE _____

DISTANCE ON A GRID

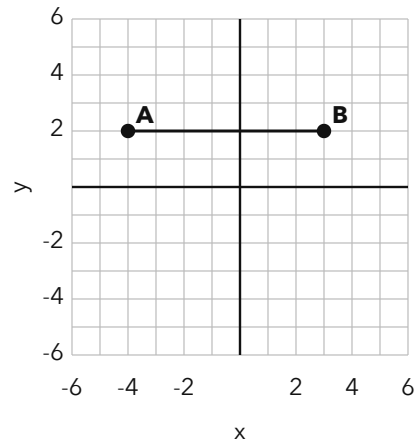
Plot (x, y) by moving horizontally from 0, then vertically. Points with the same y -coordinate form a horizontal segment; use the absolute difference of x -coordinates. For the same x -coordinate, use y -coordinates. Distance is nonnegative. Each grid interval is 1 unit.

WORKED EXAMPLE

$A(-4, 2)$ and $B(3, 2)$ lie on the same horizontal line. Read the plotted points and find AB .

- Both y -coordinates are 2. Compare x -coordinates.
- The distance is $|3 - (-4)| = 7$, or 4 units to 0 and 3 more.

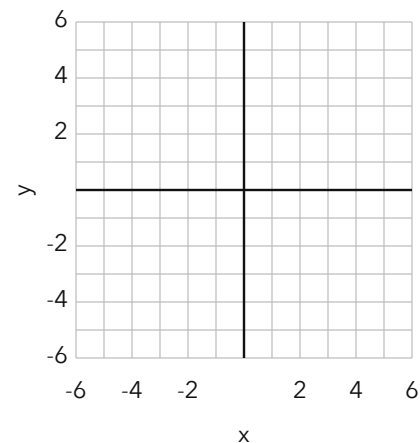
Answer: $AB = 7$ units.



PRACTICE 4 problems

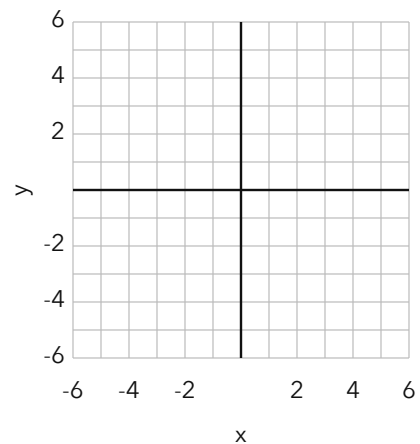
- 1** Plot and label $C(-5, -4)$ and $D(-2, -4)$. Draw segment CD . Find its length using absolute value.

ANSWER _____



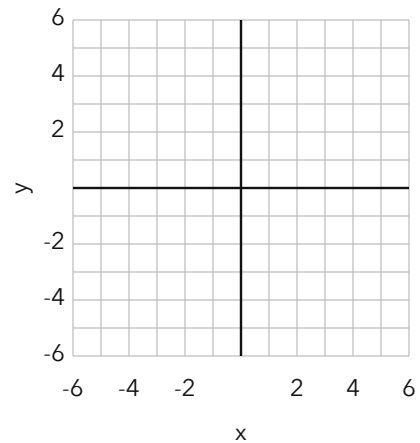
- 2** Plot and label $P(4, -3)$ and $Q(4, 2)$. Draw PQ . Find its length using absolute value.

ANSWER _____



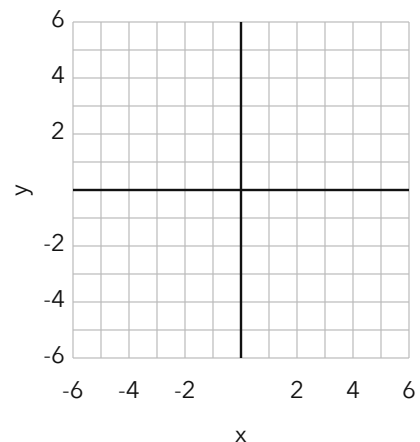
- 3** Plot and label $R(-5, 4)$ and $S(-1, 4)$. Draw RS . Find its length. State the quadrant of both points.

ANSWER _____



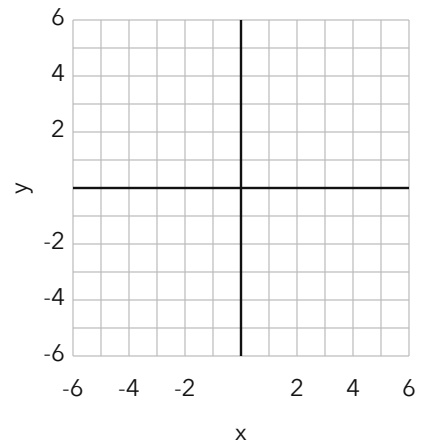
- 4** Plot and label $T(-3, 5)$ and $U(-3, -1)$. Draw TU . Find its length and name the coordinate that stays the same.

ANSWER _____

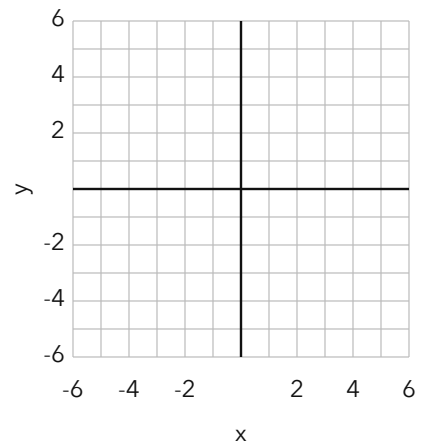


APPLY IT Show your work

- 1** A game map uses 1 grid unit for 1 meter. Plot pads A(-4, 4) and B(-4, -1); draw the straight route AB. How far is it?



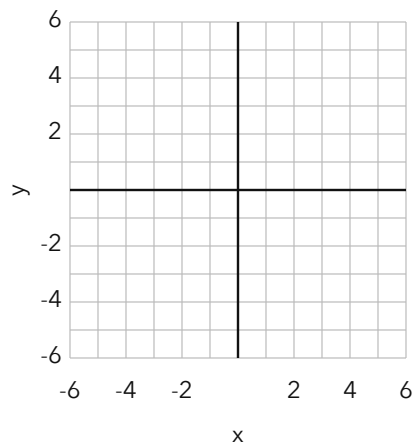
- 2** A skate-park map uses 1 grid unit for 2 meters. Plot start J(-3, -4) and finish K(2, -4); draw JK. Find the distance in meters.



CHALLENGE One step up

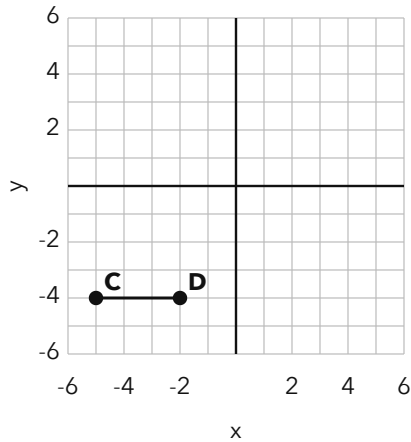
Plot A(-5, 3), B(-5, -2) and C(4, -2). Draw the route A to B to C.
Find the TOTAL route length; explain why adding is appropriate.

WORK SPACE AND ANSWER

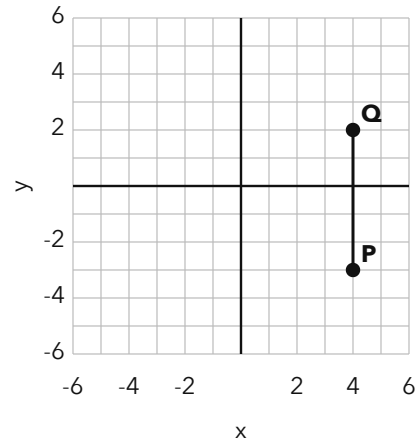


PRACTICE 1

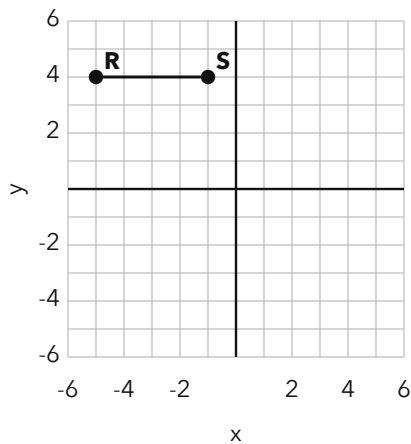
$$CD = |-2 - (-5)| = 3 \text{ units.}$$

**PRACTICE 2**

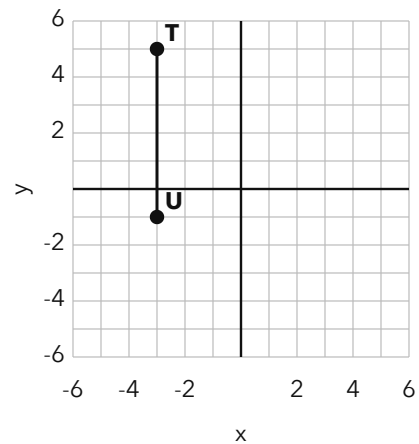
$$PQ = |2 - (-3)| = 5 \text{ units.}$$

**PRACTICE 3**

$$RS = |-1 - (-5)| = 4 \text{ units; both points are in quadrant II.}$$

**PRACTICE 4**

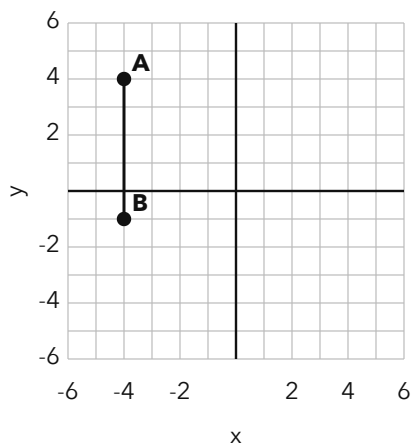
$$TU = |-1 - 5| = 6 \text{ units. The x-coordinate stays -3.}$$



APPLY IT 1

5 meters.

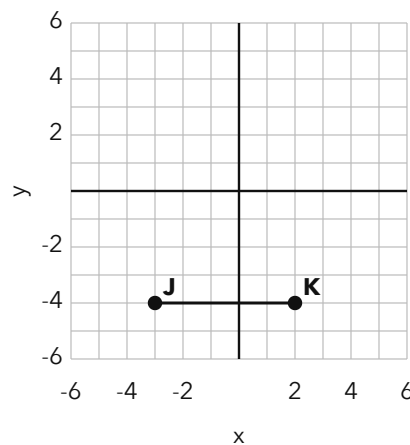
Same x-coordinate; $|4 - (-1)| = 5$ units, or 5 meters.



APPLY IT 2

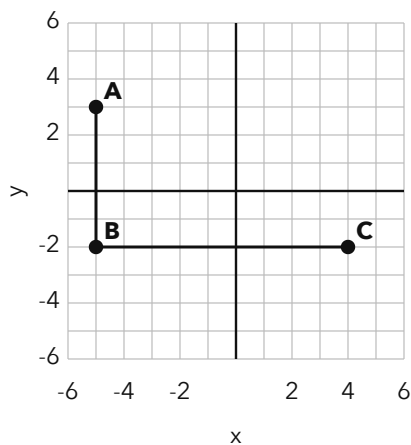
10 meters.

Same y-coordinate; $|2 - (-3)| = 5$ grid units. Then $5 \times 2 = 10$ meters.



CHALLENGE

$AB = |3 - (-2)| = 5$; $BC = |4 - (-5)| = 9$. Total = 14 units because both route segments are traveled, not a direct diagonal.



Check labels, segments and absolute-value work against the models. Practice 1-4 covers all four quadrants. Accept equivalent calculations, including distances via 0 across an axis. The challenge follows the two-segment route A to B to C, not a diagonal.