LESSON MAKER PRO

Coordinate Routes

Find distances across the coordinate plane.

GRADE 6 · 6.NOS.C.9

6.NOS.C.9 "Solve problems in context by graphing points (with the same first coordinate or the same second coordinate) in all four quadrants of the Coordinate Plane..."

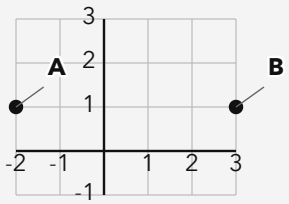
NAME _____ DATE _____

SAME LINE, ONE DIFFERENCE

Points with the same y-coordinate lie on a horizontal line. Points with the same x-coordinate lie on a vertical line. To find the length between them, subtract the coordinates that change and take the absolute value.

WORKED EXAMPLE

How far apart are A and B on the grid?



1. A and B have the same y-coordinate, so the line between them is horizontal.
2. Subtract the x-coordinates: 3 - (-2) = 5.
3. Take the absolute value: |5| = 5.

Answer: 5 units

PRACTICE 4 problems

1 Find the distance from A = (-5, 4) to B = (4, 4).

ANSWER _____

2 Find the distance from C = (0, -5) to D = (0, 5).

ANSWER _____

3 E = (-4, -4) and F = (-4, 0). Is EF horizontal or vertical? How long is it?

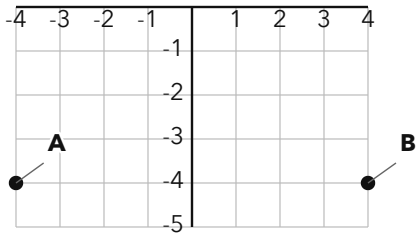
ANSWER _____

4 G = (5, -5) and H = (-5, -5). Find GH and write an absolute-value expression for it.

ANSWER _____

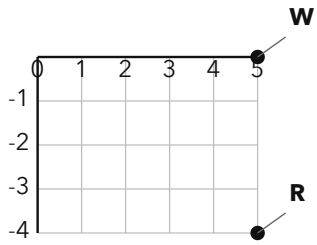
APPLY IT Show your work

1 On a game map, each grid unit is one move. How many moves does it take to go straight from A to B?



ANSWER _____

2 On a skate park map, each grid unit is 2 meters. How far is the ramp at R from the water fountain at W?



ANSWER _____

CHALLENGE One step up

A path goes from P = (-5, -4) to Q = (-5, 5), then to R = (4, 5). Find the path's total length. Explain how the coordinates show the direction of each part.

WORK SPACE AND ANSWER

ANSWER KEY

Coordinate Routes

GRADE 6 · 6.NOS.C.9

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Find the distance from A = (-5, 4) to B = (4, 4).	**9 units**
2	Find the distance from C = (0, -5) to D = (0, 5).	**10 units**
3	E = (-4, -4) and F = (-4, 0). Is EF horizontal or vertical? How long is it?	**Vertical; 4 units**
4	G = (5, -5) and H = (-5, -5). Find GH and write an absolute-value expression for it.	**10 units; |5 - (-5)| = 10**

PART 2 · APPLY IT

1. **8 moves** The points share a y-coordinate. Their horizontal distance is |4 - (-4)| = 8 units, or 8 moves.
2. **8 meters** The points share an x-coordinate, so the distance is |-4 - 0| = 4 grid units. At 2 meters per unit, that is 8 meters.

CHALLENGE

18 units. P and Q share an x-coordinate, so PQ is vertical and 9 units long. Q and R share a y-coordinate, so QR is horizontal and 9 units long.

Accept either order when subtracting coordinates inside absolute-value expressions. In the challenge, the explanation should identify both shared coordinates and add the two segment lengths.