Finding the Length of a Line Segment

Distribute copies of a coordinate grid to place in a communicator. Tell students that it will not be necessary to mark the coordinates because all units will be one unit today

Have students graph the following four sets of points and determine the length of the line segment:

- (1,5) and (1, 9) Length: 4
- (2,2) and (8,2) Length: 6
- (-3,5) and (-3,-3) Length: 8
- (-4, -5) and (7,-5) Length: 10

Ask students to write the length of each segment in large numbers next to each line segment. Turn the communicators over when they have finished the four questions.

Ask students how they determined the length of each segment. (Try to get students say they subtracted the x or y coordinates.)

Have students clear their communicators and graph the following line segments:

- (1,1) and (4,5) Length: 5
- (2,-2) and (6,-5) Length: 5
- (-1,-9) and (-7, -1) Length: 10
- (-4,8) and (-10, 0) Length: 10

Have students construct the right triangle associated with each line segment. Have students determine the length of each segment. Ask students what the name of the graphed line segment is in each triangle. (Hypotenuse) Ask students if they can find the leRahn © 2008ngth of the hypotenuse. Students should suggest that they use the Pythagorean Theorem.

Ask students to summarize how they will find the length of a line segment if is on a coordinate grid. (Graph the line segment, find the associated right triangle, find the length of the sides, use the Pythagorean Theorem)

Challenge students with several other line segments:

- (-5,-9) and (0, 3) Length: 13
- (9,9) and (1, -6) Length: 17
- (-10,1) and (2, -4) Length: 13

Ask students to summarize how they are finding the length of a line segment. (Graph the line segment, find the associated right triangle, find the length of the sides, use the Pythagorean Theorem)