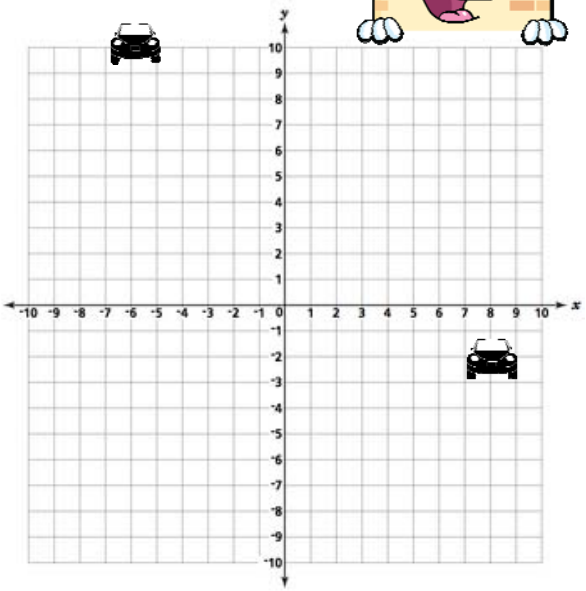
Distance Formula Step by Step Lesson



Mr. and Mrs. Patterson are driving home from work. Their home is halfway between them. Mr. Patterson is at (-6, 10) and Mrs. Patterson is at (8, -2).

1. What are the coordinates of their home?

2. How far will each of the Patterson's need to drive to arrive home, if each of grid represents 100 meters?

Explanation: 1. Because the home is half-way between their two ordered pairs, the position of the home would be represented by:

$$\left(\frac{x_1+x_2}{2}, \frac{y_1+y_2}{2}\right)$$

$$\left(\frac{-6+8}{2}, \frac{10+-2}{2}\right)$$ Inserting coordinates (-6, 10) (8, -2).

(1, 4)

Explanation: 2. To find the distance each vehicle is from home we can use the distance formula:

$$d = \sqrt{(x_2 - x_1)^2 + (y_z - y_1)^2}$$
$$d = \sqrt{(8 - (-6))^2 + (-2 - 10)^2}$$
$$d = \sqrt{14^2 + -12^2}$$
$$d = \sqrt{196 + 144}$$
$$d = \sqrt{340}$$

Distance = ≈ 18.44 grid

Each grid represents 100 meters therefore the distance is (18.44 x 100 m) 18.44 x 100 m = 1844 meters