Name _____ Date _____

Vector Based Word Problems - Step-by-Step Lesson

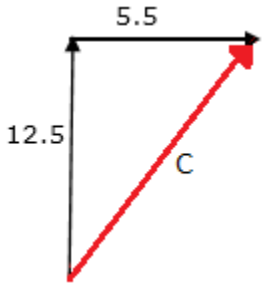
a. John is going for a morning walk from his home.

He goes 12.5 km north and 5.5 km east.

What is his displacement relative to an observer living in his home?

Explanation:

Since the values given are due north and east, connecting the 2 endpoints creates a right-angled triangle for us.



The observer would be in the direction of the hypotenuse.

If you calculate the value of the hypotenuse, you will be able to gauge the displacement relative to an observer from the home. Both values are in kilometers, so our final answer will share this measure.

$5.5^2 + 12.5^2 = C^2$

$30.25 + 156.25 = C^2$

$186.5 = C^2$

$\sqrt{186.5} = C$

Answer is: C = 13.65 km