

Physics – Finding Resultant Magnitude and direction

1. A truck driver is attempting to deliver some furniture. First, he travels 8 km East, and then he turns around and travels 3km West. Finally, he turns and travels 12 km east to his destination.
 - a. What distance has the driver traveled?
 - b. What is the driver's total displacement?
2. While following the directions on a treasure map, a pirate walks 45.0 m north and then turns and walks 7.5 m east. What single straight-line displacement could the pirate have taken to reach the treasure?
3. How fast must a truck travel to stay beneath an airplane that is moving 105 km/h at an angle of 25° to the ground?
4. A truck drives up a hill with a 15° incline. If the truck has a constant speed of 22 m/s, what are the horizontal and vertical components of the truck's velocity?