

International Leadership Charter High School
Physics
Homework #10

Name: _____

Family: _____

Date: _____

Problems:

1. Which of the following quantities are scalars, and which are vectors?
 - A. the acceleration of a plane as it takes off.
 - B. the number of passengers on the plane.
 - C. the duration of the flight.
 - D. the displacement of the flight
 - E. the amount of fuel required for the flight.

2. A roller coaster moves 85 m horizontally (east) and then travels 45 m at an angle of 30° above the horizontal (north of east). Calculate the magnitude and direction (angle) of the total displacement.

3. A novice pilot sets a plane's controls, thinking the plane will fly at 250 km/hr to the north. If the wind blows at a velocity of 75 km/hr at 45° south of east, what is the plane's resultant velocity vector (magnitude and direction/angle)?