

Solve. Make a diagram to help you. Round all measures to the nearest hundredth.

1. You are going to travel from Chicago to Florida for Spring Break! Florida is 1300 miles from Chicago. Your plane takes off straight for your destination at an angle of 60 degrees south of east at 500 miles per hour. From the time when you take off to the time when you land, you have an average wind speed of 20 miles per hour directly east.

a) How many degrees does your plane veer from its course?

b) What is the plane's actual speed?

c) How many miles are you actually off course when you should have arrived at your destination?

2. Tigger jumps with a force of 280N at an angle of 40° with the horizontal axis.

a) Draw a diagram showing the horizontal and vertical components.

b) Calculate the magnitude of the horizontal and vertical components.

3. Two tugboats pull a steamboat into a harbor. The first boat pulls with a force of 115N; the second pulls with a force of 105N at a 40° angle with the first boat.
- Find the magnitude of the resultant vector.
 - Find the direction (angle) of the resultant vector.
4. A plane travels 60° north of east at a speed of 44 miles per hour. The wind travels north at 33 miles per hour.
- Find the magnitude of the resultant vector
 - Find the direction (angle) of the resultant vector.
5. A running back exerts a force of 480 lbs. directly south, while a defensive end applies a force of 720-lbs. pointing 20° north of west.
- Calculate the resultant vector of the two forces
 - Find the direction (angle) of the resultant vector.