

PDF 6.030 Velocity

Example 1

A plane is heading due north with an air speed of 400 km/h when it is blown off course by a wind of 100 km/h from the northeast. Determine the resultant ground velocity of the airplane

Example 2

A plane is traveling 400 km/h in the direction W 25° N when it encounters a wind. As a result of the wind, the resultant velocity of the plane is 410 km/h, W 10° N. What is the velocity of the wind?

Example 3

A river is 2 km wide and flows at 6 km/h. Anna is driving a motorboat, which has a speed of 20 km/h in still water and she heads out from one bank in a direction perpendicular to the current. A marina lies directly across the river from the starting point on the opposite bank.

- a) How long will it take for the boat to cross the river?
- b) How far downstream from the marina will the current push the boat?
- c) If Anna decides that she wants to end up directly across the river at the marina, in what direction should she head? What is the resultant velocity of the boat?