Honors Physics Problem Set 2 – Vectors Mr. McMullen

Name _____ Date _____ Period _____

1. Kyle is flying a plane at an original heading of due north at a speed of 225 km/h. A sudden wind blows from the east at 55 km/h. Find the magnitude and direction of the plane's resultant velocity.

2. A weather station releases a weather balloon. The balloon's buoyancy accelerates it straight up at 15 m/s2. At the same time, a wind accelerates it horizontally at 6.5 m/s2. What is the magnitude and direction (with reference to the horizontal) of the resultant acceleration?

3. Dave rows a boat across a river at 4.0 m/s. The river flows at 6.0 m/s and is 360 m across.

   a. In what direction, relative to the shore, does Dave's boat go?

   b. How long does it take Dave to cross the river?

   c. How far downstream is Dave's landing point?

   d. How long would it take Dave to cross the river if there were no current?

4. Kyle wishes to fly to a point 450 km due south in 3.00 hours. A wind is blowing from the west at 50 km/r. Compute the proper heading and speed that Kyle must choose in order to reach his destination on time.