Name:_____

Family:_____

Date:_____

Problems:

1. A pilot flies their plane over the Grand Canyon at a velocity of 125 km/hr due north. If the wind is blowing with a velocity of 75 km/hr at an angle of 45° south of east, calculate the plane's resultant velocity (magnitude and direction/angle).

2. Find the magnitude and direction of the resultant velocity vector for the following perpendicular velocities:
    A. A fish swimming at 3.0 m/s relative to the water across a river that moves at 5 m/s.
    B. A surfer traveling at 1 m/s relative to the water across a wave that is traveling at 6 m/s.

3. Find the vector components along the x- and y-axes of the following:
    A. A car displaced 45° north of east by 10 km.
    B. A duck accelerating away from a hunter at 2 m/s² at an angle of 35° to the ground.