**Vector Practice – Physics 40**

Simple Vector Conversion

Find the magnitude and direction of the following vectors:

Find the component form of the following vectors (in form):

17˚

32

55

7

37˚

63˚

Using vectors , & above, solve the following:

+ +)

2D Rate Problems:

* You are rowing a boat eastward across a river at 4m/s. The current pushed you downstream at a rate of 1.8m/s. If the river is 100m wide, how far downstream from where you started do you land?
* A swimmer swims straight across a river with a downwards current of 0.5m/s. After swimming at 2m/s, she reaches the other side, and she notices she’s drifted downstream 30m. What is the width of the river?
* A boater is traveling across a 500m river with a downstream current of 0.25 m/s. The boat lands 40m downstream of where it started. How fast was the boat traveling?
* You drive a boat across a 70 river at 7m/s and find you’ve traveled 4 meters downstream from where you’ve started when you land. What is the current of the river?
* A car travels along the highway at 40m/s. As it travels down a 120m stretch of road, a gust of wind blows it 30m across the road perpendicular to the direction of travel. What is the velocity of the wind?