Name: Period:

River Vectors Homework Part II

When vectors are not at right angles with each other

*Show all work including vector drawings, equations and substitutions with units.*

Formulas to use:

1. A plane flies SW at 200 km/hour, when a wind blows from the north at 50 km/hr. What is the velocity of the plane to a person on the ground? (Remember to think magnitude and direction) Does the wind help the plane fly faster or not? Why?

2. A boat has to travel across a river and points its bow 30 degrees downward from a line drawn straight across. The distance straight along this line to the other side is 2.5 km. A current is flowing that causes the boat to land 1.5 km further downstream. What is the displacement of the boat from its starting point?

3. Two students are pulling on ropes attached to a rock. One pulls 30⁰ SW with a force of 200 newtons and one pulls 10⁰ NW with a force of 230 newtons. What is the resultant force on the rock?