Name: Period:

River Vectors Homework Part I

When vectors are at right angles with each other

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

Formulas to use:

1. A plane flies to the south at 200 km/hour, when a wind blows from the east at 50 km/hour. 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 straight across. The river is 2.00 km wide. However, a current is flowing which causes the boat to wind up 1.50 km downstream. What is the displacement of the boat?

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