

Name \_\_\_\_\_  
 Honors Physics  
 Period \_\_\_\_\_

# B

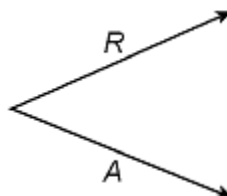
Date \_\_\_\_\_  
 Vectors/Projectiles WS #2H  
 Mrs. Nadworny

## Resultants

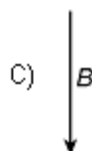
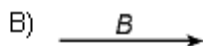
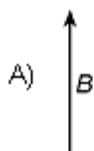
(12 pts)

**Directions** –Read online textbook pages 85 – 87. Solve the problem using both methods learned in class.


1. Vectors A and B have a resultant R. Vector A and resultant R are represented in the diagram below.



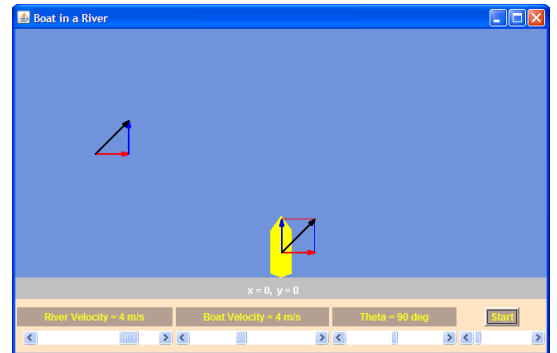
Which vector best represents vector B?



2. A 5.0 N vector could have perpendicular components of  
 A) 1.0 N & 4.0 N    B) 2.0 N & 3.0 N    C) 5.0 N & 5.0 N    D) 3.0 N & 4.0 N
3. A turtle swims West at 8.0 m/s across a river whose current is 5.0 m/s South. Determine the resultant velocity of the turtle.

Scale Method	Math Method
	

Go to <http://surendranath.tripod.com/Applets.html> . Put your cursor over the Applet Menu (upper left hand corner) and choose Kinematics then 2D Motion, then Boat and River to get to the applet. Click on the black box to start the applet. It should look like this:



- If the Applet Menu does not appear in the upper left corner, click on a simple html Menu.
4. First you are going to see how long it takes the boat to cross the river if the river is not flowing (“off”). Set the Boat Velocity to 2 m/s and the River Velocity to 0 and click Start. Measure with a stopwatch (many smart phones have stopwatch features) how long it takes the boat to cross the river. Do three trials and calculate an average time. Show your data and results below.

Times: \_\_\_\_\_ Average time to cross the river with the river “off”:

5. Now you are going to see how long it takes the boat to cross the river with the river flowing (“on”). Set the river velocity to 4 m/s and click Start. Measure with a stopwatch how long it takes the boat to cross the river. Do three trials and calculate an average time. Show your data and results below.

Times: \_\_\_\_\_ Average time to cross the river with the river “on”:

6. Compare your results from these two trials.
7. Draw and **label** a triangle showing the two components of the velocity (boat velocity and river velocity) as well as the boat’s resultant velocity.
8. Calculate the magnitude of the boat’s resultant velocity when the river is on and **label** this value on the diagram you drew in the previous question. Show your work below.