**Accelerated Pre-Calculus Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Vectors Quiz A**

For questions 1-6 use the vectors identified below:



1. a.  b. 

2. Which of the following pairs of points could be the initial point and the terminal point, respectively, for ?

a.  b.  c.  d. 

3. Find a unit vector in the same direction as .

4. Find .

5. What is the angle between vectors  and ?

6. a.  b. 

7. *Fill in the blank*: In order for two vectors to be orthogonal their dot product must be \_\_\_\_\_\_\_\_\_\_\_.

Explain why this is true.

8. 

Show your work in finding the following:

 

9. When you find the cross product of two vectors what are you finding? i.e. Explain what the resultant vector represents. Be sure to use appropriate terminology.

10. Write the equation of a plane that contains the points P1 (1, -1, 3); P2 (4, 0, 2); P3 (-5, 4, 2). Show your work clearly.

11. A motorboat traveling 4 m/s due East encounters a current traveling 3 m/s, North.

a. What is the resultant velocity of the motorboat?

b. If the width of the river is 80 meters wide, then how much time does it take the boat to travel shore to shore?

c. What distance downstream does the boat reach the opposite shore?

12. Write the equation of a plane that is perpendicular to  containing the point .