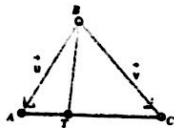


Review for Bigger Quiz, Vectors Section 12.1-12.4

Name: _____

1. F_1 is a force of 8N pulling an object due South, and F_2 is a force of 15N pulling the object due East. Find the direction, measured clockwise from North) and the magnitude of the resultant force F_3 . Include a vector diagram as part of your solution.

2. In the diagram below, $AT:TC = 2:3$. If $\overrightarrow{BA} = \vec{u}$ and $\overrightarrow{BC} = \vec{v}$, express the following in the form $r\vec{u} + s\vec{v}$.



a.) \overrightarrow{AB}

b.) \overrightarrow{CA}

c.) \overrightarrow{CT}

d.) \overrightarrow{BT}

3. A plane is on a course of 200° at a speed of 520 mi/h. What are the north-south and east-west components of the plane's velocity vector?

4. Given the points $A(2,4)$, $B(0, -5)$ and $C(7,0)$, find the coordinates of $D(x,y)$ such that quadrilateral $ABCD$ is a parallelogram.

5. An object moves with constant velocity so that its position at time t is given by the equation $(x,y) = (1,3) + t(2, -3)$.

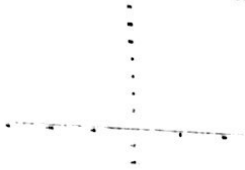
a.) Find the objects velocity and speed.

b.) Find a pair of parametric equations that correspond to the vector equation.

c.) When and where does the object cross the parabola $y = 2x^2 - 6x$?

6. Given points $A(-2,4)$ and $B(1,1)$
- Express \overrightarrow{AB} in component form. (Is this different from \overrightarrow{BA} ? If so, how?)
 - Find the coordinates of the point P that is $\frac{2}{3}$ of the way from A to B.

7. Given $\vec{u} = (2,3)$ and $\vec{v} = (-1,5)$
- Show on a vector diagram the vectors \vec{u} , \vec{v} and $\overrightarrow{u+v}$.



- Evaluate $\|\vec{u} + 2\vec{v}\|$.
 - Find the angle between \vec{u} and \vec{v} .
8. Line L has the equation $(x,y) = (-7,3) + t(-2,4)$ and line M has the equation $(x,y) = (5,6) + t(3,k)$
- What value of k makes the lines parallel?
 - What value of k makes the lines perpendicular?
 - Find the pair of parametric equations of a line through (8,9) parallel to L.