Vector Components

Practice Your Understanding

Name:	
Date:	

1. What is a vector component? How do vector components contribute to calculating a vector's magnitude?

2. If you don't know the components of a vector, only the magnitude and angle of a vector how can you calculate the x and y components of the vector? What formula(s) would you use?

3. Let a vector $\overrightarrow{B} = 11.4$ and have an angle of 53°. Calculate the vector's components in two dimensions.

4. On the graph below draw the vector \overrightarrow{B} , the vector components of vector \overrightarrow{B} and angle of the vector \overrightarrow{B} .



5. A vector \overrightarrow{F} has a magnitude 12.3 with an angle of 180°. What are the components of the vector? Write out the vector \overrightarrow{F} numerically. (Ex: $\overrightarrow{A} = 3\hat{i} + 4\hat{j} = 5$)

6. A vector \overrightarrow{G} has a magnitude 15.1 with an angle θ of 23° and an angle α of 62°. What are the x, y, and z components of the vector? Write out the vector \overrightarrow{F} numerically.

7. In the box below draw the vector \overrightarrow{G} labelling its x, y, and z components as well as its angles.

8. In screen shot below draw a vector starting from the Big Ben to Buckingham Palace and then from Buckingham Palace to Trafalgar Square. Once you have done so, draw the resultant vector. What direction is it pointing in? (Although the lines are not straight), what angle is the resultant vector?



9. In screen shot below draw a vector starting at W 45th St and ending at 46 St M. then draw a vector perpendicular to it facing northwest. The first vector should be of length 4 (based on the four blocks) and length 1 (based on one block). Based on these two vectors, calculate the magnitude of the resultant vector.

