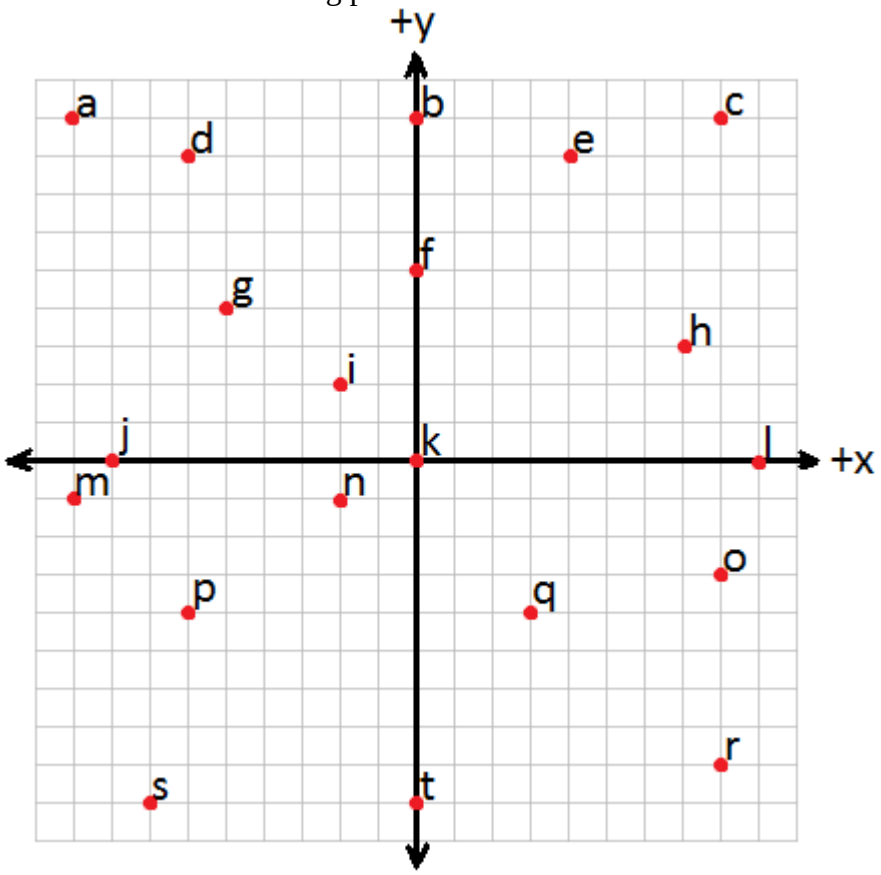
Name: _____

Week 2 Lab
Please explain your answer and show your work for each question.

1) Give the coordinates of the following points:



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2) In the popular modeling program 3D Studio Max, the default orientation of the axes is for +x to point right, +y to point forward, and +z to point up. Is this a left- or right-handed coordinate space?

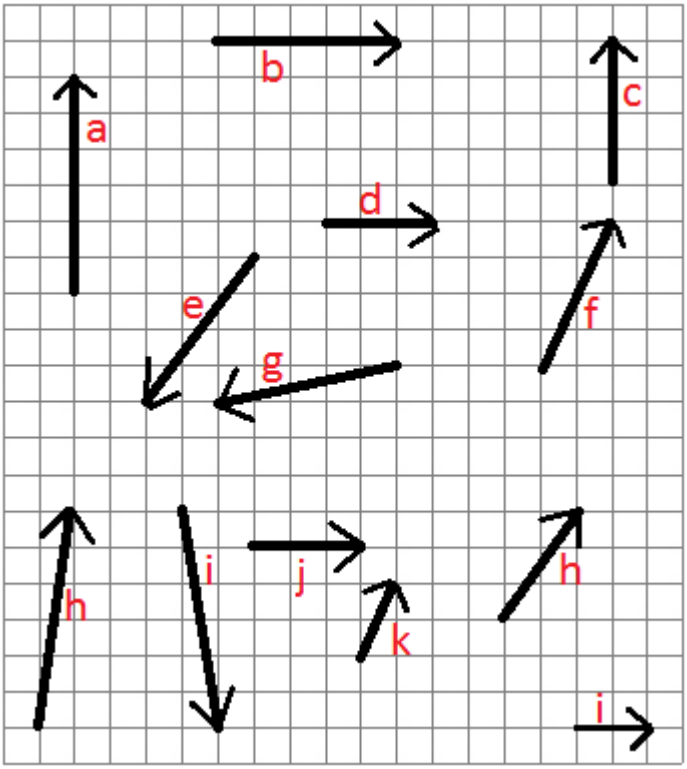
3) Let:

a = [-5, 7], **b** = $\begin{bmatrix} 4 \\ 0 \\ 5 \end{bmatrix}$, **c** = $\begin{bmatrix} 16 \\ -1 \\ 4 \\ 6 \end{bmatrix}$

   a. Identify **a**, **b**, and **c** as row or column vectors, and give the dimension of each vector.

   b. Compute $b_y+c_w+a_x+b_z$

4) Give the values of the following vectors:



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5) Identify the following statements as true or false. If the statement is false, explain why.
   a. The size of a vector in a diagram doesn't matter. We just need to draw it in the right place.

   b. The displacement expressed by a vector can be visualized as a sequence of axially aligned displacements.

   c. These axially aligned displacements from the previous question don't have to occur in the proper order.

   d. The vector [x, y] gives the displacement from the point (x, y) to the origin.

6) What is the difference between Polar and Spherical Coordinates? Explain and show the graph.

7) What is [-5, 3] in Polar Coordinates? Show it on Cartesian and Polar Coordinate system.

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8) Given a vector of length 10 and angle of 60° what are its Cartesian Coordinates? Show it on Polar and Cartesian coordinate system.

9) What is (12,10,5) in Spherical Coordinates? Show it on Cartesian and Spherical Coordinate system.