Name:

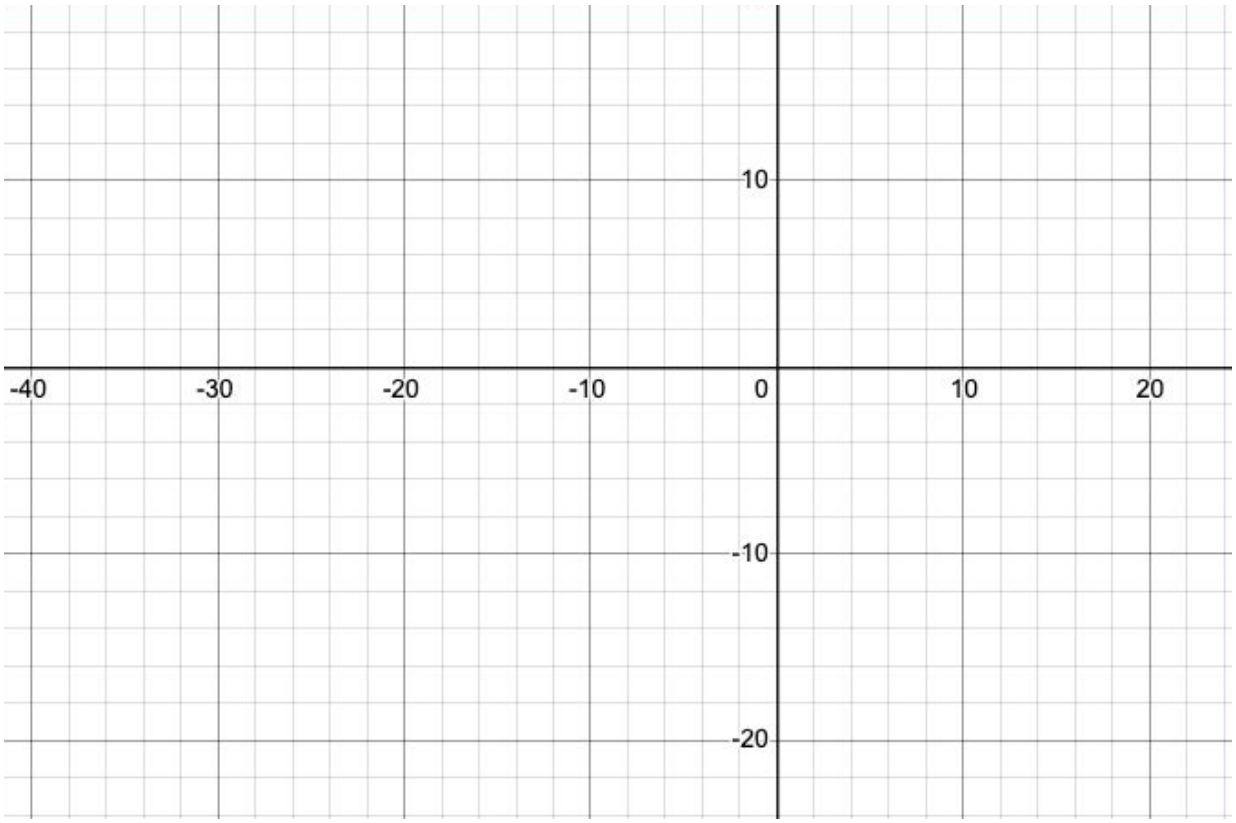
Vector Activity Worksheet

Instructions: For this activity, on the tables around the room are worksheets that have instructions for the different workstations. Once you get to your table, find the instruction sheet and the activity that goes with it. Each activity will be given 12 minutes to complete, once you completed all 6 stations turn in this worksheet to Ande.

Materials: Notebook, Computer, Desmos

Table 1: Scavenger Hunt

1. Draw a map of your journey using vectors.



2. What was the total distance you traveled?

3. What was your displacement (vector from start to finish)?

Table 2: Vector Operations

Task: You will listen to a 4 minute lecture on vector operations by Kyle or Ande. Feel free to take notes during the lecture. After that complete the listed practice problems below:

1. Compute the following Operations $\overline{v} = (-1, -7)$, $\overline{w} = (3, 1)$

a) $2\overline{v} + 3\overline{w}$ b) $\frac{1}{2}\overline{v} - (-2)\overline{w}$ c) $2\overline{w} + 7\overline{v}$

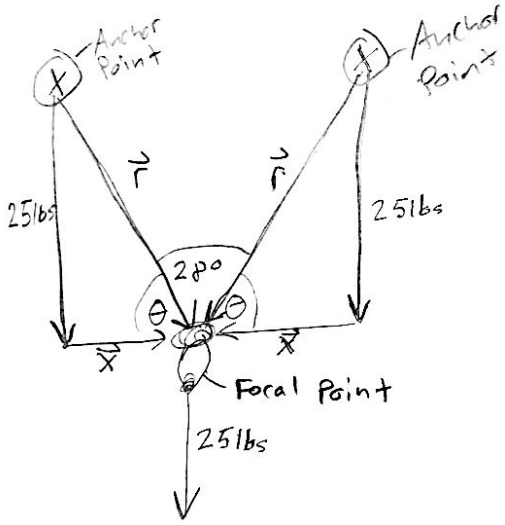
2. Draw the following vector operations. $\overline{u} = (7, -4)$, $\overline{k} = (3, 7)$

a) $2\overline{u} + \frac{1}{5}\overline{k}$ b) $\overline{k} - \overline{u}$ c) $\frac{1}{4}\overline{u} + \overline{k}$

3. Find the magnitude of the following vectors $||\overline{w}||$, $||\overline{v}||$, $||\overline{u}||$

Table 3: Climbing Anchors

The figure below is an example of a diagram that describes the force on a climbing anchor. The force can be split up into the sum of the vertical and horizontal vectors. Notice the diagram forms a right triangle and each side describes how much force is in the vertical direction and how much for is in the horizontal direction. The hypotenuse is the resultant vector and describes the total force on the anchor point.



1. Draw a diagram for each anchor and find the total force on each anchor point.

Table 4: Vector Fields

https://www.intmath.com/blog/mathematics/vector-fields-a-simple-and-painless-introduction-3345

Task: Read the following article and answer the following prompt. Write 3-5 sentences of one example of vectors you found interesting and why?

Table 5: Free Body Diagrams

1. Draw 3 free body diagrams from the video below:

Table 6: Free Body Diagram of the Flying Delorean

Draw the free body diagram of the flying delorean below: