Vector Applications

Name_____

1) Find the length and direction of **u** + **v** given the vectors **v** = $\langle 2, 1 \rangle$ and **u** = $\langle 4, -1 \rangle$. Sketch all three vectors on the grid below.
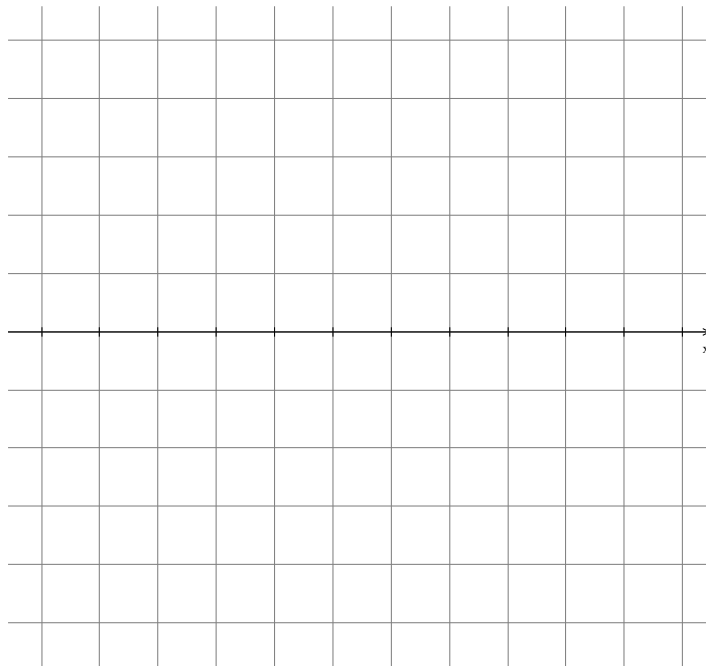
2) Bailey, Keira, Jae, Monty, and Miles are paddling a boat across Lake Merced on a windy day that has created an east bound current of 6 mph. They are rowing the boat due north at 10 mph but the current is pushing their boat off course. How fast and in what direction are they actually traveling?

3) Dean, Gavin, and Mikey are taking flying lessons. They are flying 70° north of east at a speed of 400 mph when they get into an argument over who should be pilot and who should be co-pilot. As they argue, they fail to notice that a wind blowing 65 mph in a direction of 123° is affecting their speed and direction. In what direction and at what speed is the plane actually travelling?
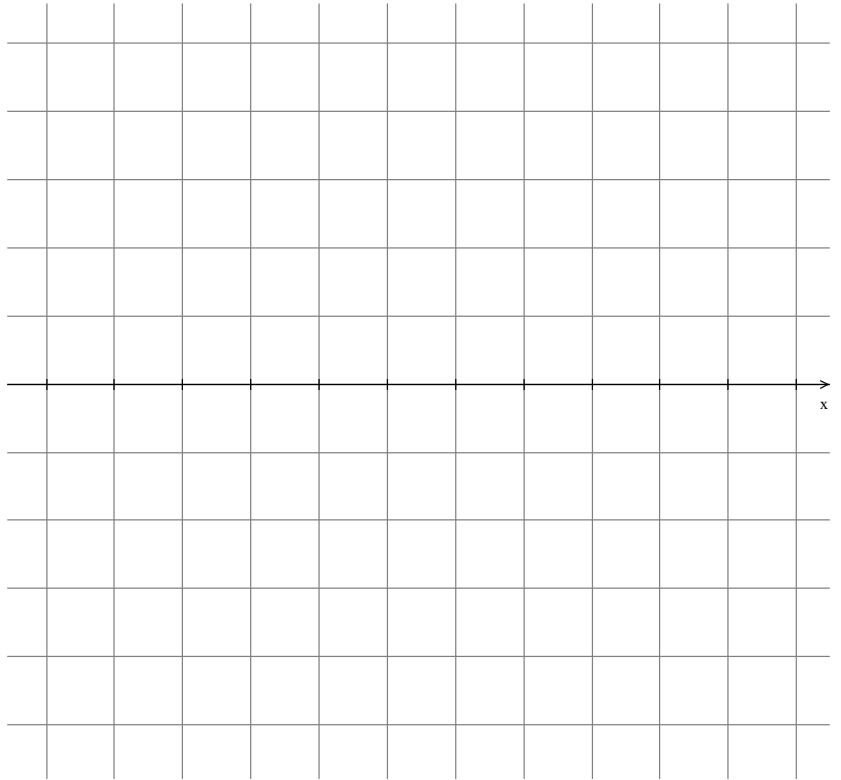
4) After they get lost, Tessa has to go find them and escort them back to the airport. Because she had already travelled 75 miles south west in a direction of 223° from the airport when she got the distress call, she had to turn and head due north for 90 miles to catch up to them. How far from the airport and in what direction is she when he finally catches up to them?