## MAT123, Paper Homework 1

due in recitation the week of 9/5



From my chair on the beach on one side of the harbor, the angle to a point on the opposite shore is measured as 88°. After walking 50 meters along the shore, I measure the angle from my new position to the same point on the opposite shore, and it is 84° (in roughly the same direction). We want to determine the distance between my chair and the point on the opposite shore.

1. Draw a picture involving triangles and angles that represents what we know and what we want to find. Label all useful quantities appropriately, including distances and any other useful auxillary quantities. Give variable names to unknown lengths that are useful.

2. Using the variables as above, find the distance. Your answer should be presented first as an exact quantity (that is, in terms of things like  $\sin(88^\circ)$ ,  $\cos(84^\circ)$ ,  $\pi$ , or  $\sqrt{11}$ ), and then as an approximation to the nearest 10 meters (using a calculator).