M125
Fall 2002

Take Home Quiz

Name:_____

Show all your work! Due on/before Thursday

1. A boat leaves a dock at 2PM traveling due south at 20 kilometers per hour. Another boat is traveling due east at 15 kilometers per hour, and arrives at the dock at 3PM.

   (a) At 2PM, how far apart are the boats?

   (b) At 3PM, how far apart are the boats?

   (c) At 2:30PM, how far apart are the boats?

   (d) At t minutes past 2PM, how far away is the eastbound boat from the dock? How far away is the southbound boat?

   (e) At how many minutes past 2PM were the boats closest to each other?

2. A cylinder is constructed so that its radius is equal to its height. In this case, its volume can be computed as $V = \pi r^3$. Calculate ΔV and dV, if the radius changes from 2.0 to 2.1.