WORKSHEET FOR 3/9/2009

Reading assignment for Wednesday. Read section 11.2.
Homework due Wednesday. 11.1: 11, 13, 15, 18, 22, 24, 40 (Hint: think about a Riemann sum)
Exercises:

(1) Find the (possibly infinite) limit of the following sequences or explain why it does not exist:
   (a) $a_k = (-3/2)^k$
   (b) $a_j = (-1)^j$
   (c) $a_l = 1^l$
   (d) $a_n = 1.1^n$
   (e) $a_i = (1/2)^i$
   (f) $a_k = (-3/4)^k$
   (g) $a_j = (\ln j)/j^r$, where r is a fixed number, $r > 0$.

(2) Given an example of a sequence that is:
   (a) Convergent but not monotone.
   (b) Bounded but not monotone.
   (c) Monotone but not convergent.

(3) Let $a_n = \cos 1 \cdot \cos 2 \cdots \cos(n-1) \cdot \cos(n)$.
   (a) Compute a_5.
   (b) Is the sequence $\{a_n\}$ bounded? Why?
   (c) Is the sequence $\{a_n\}$ monotone? Why?
   (d) Is the sequence $\{|a_n|\}$ bounded? Why?
   (e) Is the sequence $\{|a_n|\}$ monotone? Why?