Homework 5
Due: Friday, Feburary 26

1. Let $\{a_n\}$ be a sequence of real numbers. Suppose that $\lim_{n\to\infty} a_n = A$. Show that $\{a_n\}$ is Cauchy.
2. Use the fact that $\mathbb{R}$ is complete ("any nonempty bounded subset has a least upper bound") to prove:
   (a) A bounded monotone sequence converges.
   (b) A Cauchy sequence converges.
3. [F] 6.1.4.
4. [F] 6.2.20. *Also, read 6.2.22.*

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5. There is a chance we will need to move the midterm dates.
   (a) Can you take the first midterm on Monday, March 8?
   (b) Can you take the second midterm on Monday, April 19?
   (c) Can you take the second midterm on Wednesday, April 21?