

Homework 1

Due September 1st at the beginning of class. Justify your answers. Please let me know if you have a question or find a mistake.

1. Exercise 1.5.1 from page 13.
2. Exercise 1.5.3 from page 13.
3. Exercise 1.5.4 from page 13.
4. Exercise 2.2.1 from page 30. Omit finding the sharpest bounds.
5. For this problem you do not have to justify your answers. For each of the following sequences, state which of the following attributes apply and which do not: increasing, strictly increasing, decreasing, strictly decreasing, montone, bounded above, bounded below, bounded, by filling out a chart like this

	I	SI	D	SD	M	BA	BB	B
Yes								
No								

(See the definitions in Sections 1.2, 1.3, and 1.6.) If the sequence is bounded above, give an upper bound, and if it is bounded below, give a lower bound (you do not have to give the best possible bounds).

(a) $1, -1/2, 1/3, -1/4, \dots$

(b) $-1, -2, -4, -8, -16, \dots$

(c) $\{\sin n\}, n \geq 0$

(d) $\{n \sin n\}, n \geq 0$

(e) $\{\cos(2\pi n)\}, n \geq 0$