Math 113 HW #4
Due 3:00 PM Thursday, September 23

Reading: Stewart §2.3–2.5.

Problems: Please follow the guidelines for collaboration detailed in the course syllabus.

1. Exercise 2.3.14.

2. Exercise 2.3.28.

3. Show that $\lim_{x \to 0^+} \sqrt{x} e^x = 0$.

4. Exercise 2.3.56.

5. One can prove that, if $f(x) = \frac{e^x - 1}{x}$, then

$$\lim_{x \to 0} f(x) = 1.$$

   How close does x need to be to 0 in order for $f(x)$ to be within 0.5 of the limit 1?

   How close does x need to be to 0 in order for $f(x)$ to be within 0.1 of the limit 1?

   (In other words, you've found the δ corresponding to the choices $\varepsilon = 0.5$ and $\varepsilon = 0.1$.)

6. Exercise 2.4.16.

7. Exercise 2.5.4.

8. Exercise 2.5.16.

9. Exercise 2.5.24.

10. Exercise 2.5.36.