3.1. See the handout “Proofs to Grade” and analyze the proofs there and assign them grades as described. Turn in a written analysis for proofs (b), (d), and (e).

3.2. Problem #5 from the LCR handout.

3.3. Problem #7 from the LCR handout.

3.4. From Apostol, page 43, problem 3 (all parts).

3.5. From Apostol, page 56, problem 5cf.

3.6. From Apostol, page 57, problem 11ad.

3.7. From Velleman, page 153, problem 1: Prove that for every real number $x$ there is a unique real number $y$ such that $x^2y = x - y$.

The following are recommended problems from Velleman’s book, to discuss but not to turn in:

3.V1. page 122, problem 6: Suppose $x$ is a real number.

(a) Prove that if $x \neq 1$ then there is a real number $y$ such that $\frac{y+1}{y-2} = x$.

(b) Prove that if there is a real number $y$ such that $\frac{y+1}{y-2} = x$, then $x \neq 1$.


3.V3. page 134, problem 12: Prove that $\forall x (\exists y \in \mathbb{R} (x + y = xy) \leftrightarrow x \neq 1)$.


3.V5. page 153, problem 2: Prove that there is a unique real number $x$ such that for every real number $y$, $xy + x - 4 = 4y$. 