Math 109 Winter 2015 Homework 2

Due 1/16/10 in homework box in basement of AP&M by 3pm

Reading

All references will be to the Eccles book. Read Chapters 4-6 and do the end of the chapter exercises as you read along.

1 Exercises to submit on Friday 1/16

Assigned problems from the text:

Problems I p. 53: #8, 11, 12, 13, 14, 16.

Additional problems:

1. Recall that an integer $p > 1$ is *prime* if 1 and p are the only positive integers which divide p. Prove that if n is integer with $n > 2$, then $n^3 - 1$ is not prime. (Hint: $n^3 - 1$ is a difference of two cubes).

2. Let x and y be real numbers. Recall that x is rational if $x = a/b$ for some integers a and b with $b \neq 0$. A real number which is not rational is called irrational.
   (a). Prove that if x and y are rational, then $x + y$ is rational.
   (b). Prove that if x is rational and y is irrational, then $x + y$ is irrational.