MATH 111 Section 01 Homework 4

Below is a list of selected problems from Swokowski and Cole's

Precalculus - Functions and Graphs. You will have until Friday March 14 to finish the problem set. The first problems are suggested exercises and you do not need to turn them in. The latter set you should write up carefully and neatly as they will be graded. It is in your best interest to work all of the problems. All problems from the homework are fair game on the exams! You are encouraged to work in groups, but you must write up your own solutions. I will be available during office hours for help.

1 Suggested Problems

§4.1) 1-19 odd, 25-43 odd, 51

§4.2) 1-9 odd, 29, 31, 33, 37, 39, 41, 45

2 Required Problems

1) Find the inverse function of

$$f(x) = \frac{ax+b}{cx+d}.$$

- 2) Show that the graph of f^{-1} is the reflection of the graph of f through the line y = x by verifying the following conditions:
 - 1. If (a, b) is on the graph of f, then (b, a) is on the graph of f^{-1} .
 - 2. The midpoint of the line segment connecting (a, b) to (b, a) is on the line y = x.
 - 3. line through the points (a, b) and (b, a) is perpendicular to the line y = x.
- 3) Find an exponential function of the form $f(x) = ba^{-x} + c$ that has the given y-intercept 6 and passes through the point (3, 1).
- 4) Find the largest 30-year home mortgage that can be obtained in an interest rate of 7% if the monthly payment is to be \$1500.