MATH 151 Homework 1

Do Section 1.1 Exercises 46, 53
Do Section 1.2 Exercise 12

Also, do the following exercises

SF1. Find the largest possible domain for each function.

(a) $f(x) = \dfrac{5}{x^2 - 9}$

(b) $g(x) = \sqrt{x - 5}$

(c) $h(x) = \dfrac{9}{\sqrt{x^2 - 8x + 12}}$

SF2. For this question, write complete sentences and try to explain your answer completely. Is it true or false that, for any function f and any numbers x and y, the number $f(x+y)$ is always the same as $f(x) + f(y)$?

SF3. A theater operator estimates that 500 tickets can be sold if they are priced at \$7 per ticket, and that for each \$.25 increase in the price of a seat, 2 fewer seats will be sold. The revenue R is the total amount in dollars in ticket sales. Express R as a function of the number n of \$.25 price increases of a ticket.

SF4. The Maryland income tax rate is 2% on the first $\$1,000$ of taxable income, 3% on taxable income between $\$1,000$ and $\$2,000$, 4% on taxable income between $\$2,000$ and $\$3,000$, and 5% on remaining taxable income. Express the income tax T as a function of the taxable income x.

SF5. Name at least one thing you know how to do and at least one thing you don't know how to do with points and lines in the coordinate plane.