Reading Assignment: Section 1.5 and handout on logic.

Problems:

1. Give the negation of each of the following statements:
   - All good students study hard.
   - No males give birth to their young.
   - No students in mathematics are unable to use a computer.
   - \( \forall x \exists y \ x = y^2 \)

2. Section 1.3, exercise 56. Part d) is extra credit.

3. Section 1.4, exercise 12, parts a) through j).

4. Section 1.4, exercise 28.

5. Section 1.4, exercise 30, parts a), b), and e).

6. Define predicates and a universe of discourse to show that this statement
   \[ \forall x (P(x) \rightarrow Q(x)) \]
   is not equivalent to
   \[ \forall x P(x) \rightarrow \forall x Q(x). \]

7. Section 1.5, exercise 4.

8. Extra Credit: Section 1.2, exercise 46 (the necessary definitions are given in the column above the exercise).