Mathematics s21 2007 - Day Two

1. 9:00-10:20
   (a) Students present problems 1(a), 2, 3 from page 37
   (b) In groups of three, read section 1.6 and do exercises 1.6.2 and 1.6.4. Then read section 1.7 and do exercises 1.7.1 (1 and 3), 1.7.3, 1.7.5, 1.7.7 and 1.7.8 (to be continued after break).
2. 10:20-10:35
   Break
3. 10:35-11:30
   (a) In the same groups, continue section 1.7. Groups finishing early may start on the homework.
   (b) Groups present selected exercises.
4. 11:30-11:55 LaTeX
5. 11:55-1:00 Lunch
6. 1:00-3:00
   (a) In groups of two, read through section 1.8 and do exercises 1.8.1, 1.8.2, 1.8.3 (1 and 2), 1.8.4, 1.8.5, 1.8.8-1.8.11.
   (b) Groups present selected exercises.

Today's Key Ideas:
truth tables
implication ($A \Rightarrow B$)
conjunction ($A \wedge B$)
disjunction ($A \vee B$)
negation ($\sim A$)
contradiction ($A \wedge \sim A$)
equivalent statements ($A \iff B$)
tautology
converse

Homework

1. By constructing a truth table, show whether $(A \vee B) \Rightarrow C$ and $\sim C \Rightarrow (\sim A \wedge \sim B)$ are equivalent.
2. Negate each of the following. Do not worry about whether each is true or false.
   (a) The integer q_1 is even or q_1 is not a perfect square.
   (b) Every differentiable function is continuous. [Do not use the word "every" or "each" or the like in your answer.]
   (c) There are real numbers a, b, and c such that $a^3 + b^3 = c^3$. [Do not use the word "there" in your answer.]
   (d) If n is odd and n is a perfect number, then $n = 12m + 1$ or $n = 36m + 9$.
   (e) Read sections 1.11 through 1.14.

LaTeX Assignment 1
(Due Thursday at 1 p.m. Returned to you Friday at 9 a.m. Final version due Monday at 1 p.m.)

1. By constructing a truth table, show whether $(A \Rightarrow B)$ and $((A \wedge B) \vee (\sim A))$ are equivalent.
2. Write a careful proof of the following: The product of an even integer and an odd integer must be even. Your proof should be in complete sentences and you should state for the reader any relevant definitions. You need not define "integer."