MA2441.03

Problem Set No. 2

Dept. of Computer Science and Mathematics (Atkinson College)

Date: May 17, 1999
Due: June 7, 1999

1. From the text (Epp, 2nd Edition) do the following:
   (a) Ch. 3: p.147, #25, #26; p.153, #27, #29, p.161, #20, p.166, #22.

2. Prove that $\lceil n/2 \rceil = \lfloor (n+1)/2 \rfloor$ for all $n \in \mathbb{N}$.

3. For integers a, b, c prove that if $\gcd(a, b) = 1$ and $a|bc$ then $a|c$.

4. On p.217 (Equation 4.4.1) the text makes the false claim "where ... each $c_i = 0$ or 1 for $i = 0, 1, 2, \ldots$.

   Fix the claim and the rest of the proof by showing that the rhs of 4.4.1 is still > 0 under the corrected claim (hence we still get a contradiction).

   Do not imitate the uniqueness proof given in class, for it is totally different.

5. (Text, Ch. 5) Do the following from p.242–3: #3, #19(d,e), #20.