

MA383 - Foundations in Mathematics
Homework Assignment 2
Due to TH233 by 1600, Thursday, September 11, 2008

Remember, your writing and presentation will be graded in addition to the correctness of your solution!

1. Consider the sentence “If $mn = 0$, then $m = 0$ or $n = 0$.”
 - (a) Write the contrapositive of this sentence.
 - (b) Write the converse of this sentence.
 - (c) Write the negation of this sentence.
2. Complete problem 3g on page 44.
3. Complete problems 9c and 9d on page 45. (Note the instructions - a truth table is *not* the solution here. The objective is to prove these equivalencies using previously proven logical equivalencies.)
4.
 - (a) Write the set $\{1, 6, 11, 16, \dots\}$ using set builder notation.
 - (b) Write the set $\{x \in \mathbb{R} \mid x^2 - 4 = 0\}$ using the roster method.
 - (c) Write the set of all even integers using the roster method and then using set builder notation.
5. Complete problem 6, parts b, c, h, and i on pages 57-58.
6. Complete problems 3b,f and 4b,f on page 69.
7. Complete problems 1c and 1d on page 89.