UNC Charlotte, Department of Electrical and Computer Engineering
ECGR 2181, Fall 2009, Homework #5
Due: 9/30/09 or 10/01/09, at the beginning of class (100 points)

Show all of your work!!!!!

1. How long did this assignment take you? (Answer truthfully!) (5 points)
2. Express each as a truth table then minimize: (Show Work! List Properties. **No KMAPS**!):
   a) $F(a,b,c) = \sum m(1,2,5,6,7)$ (15 points)
   b) $F(a,b,c) = \sum m(0,4,7)$ (15 points)
3. Minimize using KMAPS:
   a) $F(a,b,c) = \sum m(1,2,5,6,7)$ (10 points)
   b) $F(a,b,c) = \sum m(0,4,7)$ (10 points)
   c) $F(a,b,c,d) = \sum m(0,3,6,7,12,13,15)$ (10 points)
   d) $F(a,b,c,d) = \sum m(0,1,2,3,4,5,6,7,8,9,10,11,12,14)$ (10 points)
4. Draw the following circuit using **only NAND** Gates: $f(a,b,c,\mathbf{d}) = (ab)' + (b+c'd)' + bc$ (25 points)

(NOTE: Problem 4 corrected - now is a function of (a, b, c, d))