Homework 1

Wednesday, August 25, 2010
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(1) Using AND, OR, and NOT gates, implement the following

$f_1 = (x + y)z$

$f_2 = (x + y)(z + w)$

$f_3 = xy + zw$

$f_4 = \overline{xy} + \overline{zw}$

(2) See section 2.4 of textbook for these questions:

what is logic synthesis?

what is logic analysis?

(3) Using truth tables, show that Figure 2.10(a) has similar functionality to Figure 2.10(d). (see page 28 of textbook)

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Note for problem 3:

For each intermediate node, you should have a column in your truth table.

(4) Using truth table to show that

(i) $X(y+z) = Xy + Xz$

(ii) $\overline{Xy} = \bar{X} + \bar{y}$

(iii) $\overline{X+y} = \bar{X}\,\bar{y}$

(5) Find f_1 and f_2