EE210 Switching System, HW4

1. Question 4(a) in 3.8 Exercises (Page192).

   \[ A \bar{D} + A B + A' C \bar{D}' + B' C \bar{D} + A' B C' \bar{D}' F = B \bar{D}' + A \bar{D} + A' B' C \]

2. Question 5(d) in 3.8 Exercises (Page192).

   \[ f_1 = x' z' + w' x y' + w x y + y' z' \]
   \[ f_2 = x' z' + w' x y' + w x y + w z' \]
3. Question 7(b) in 3.8 Exercises (Page192).

\[ f = W'X + WYZ + X'YZ' \]

\[ f' = X'Y' + WY' + W'X'Z + WXZ' \]

\[ f = (X + Y)(W' + Y)(W + X'Z')(W' + X' + Z) \]

4. Question 9(b) in 3.8 Exercises (Page193).

\[ G = A'B'D' + A'B'C'E' + DE' + CD'E \]

All of the prime implicants that are used are essential.
5. Question 12(a) in 3.8 Exercises (Page195).

12. a. The first map shows the original terms plotted.

After covering four 1's in each function with essential prime implicants where sharing is impossible, the one shared term becomes obvious, and the last two 1's of f are covered by one of the original terms, C D'.

\[
F = B' D' + A B' C D + C D' \\
G = B C + A B' C D
\]