You are expected to solve homework problems individually. If needed, you may seek help from your friends. However, do not copy. Show all steps with your solutions for full credit.

**Name: / 50**

1. ( ( 10 points) Show a truth table for the following functions:
   1. F = YZ + X′ Z′

* 1. G = X′ Y + (X + Z′)(Y + Z)

1. (10 points) Draw a logic diagram of the circuit that implement the following function using AND, OR, and NOT gates.

*F* = [[*A* (*B +* *C)ʹ* + *BDE*] (*A*′+*CE*)]

1. (20 points) Draw the logic diagram corresponding to the following Boolean expressions without simplifying them:
2. BC′ + AB + ACD
3. (A + B)(C + D)(A′ + B + D)
4. (AB + A′B′)(CD′ + C′D)
5. A + CD + (A + D')(C' + D)
6. (10 points) Write the Boolean equations for f1 and f2 and draw the logic diagram of the circuit whose outputs are defined by the following truth table: Specify the number of gates and inputs (e.g. 2-input AND) for both functions.

