

1. Obtain the 2s complements of the following unsigned binary numbers.
11001001, 01100011, 01010111, 11111001, and 01000001

2. Perform the arithmetic operation $(+27) - (50)$ and $(-42) - (30)$ in binary using signed 2s complement representation for negative numbers.

3. Use contraction beginning with a 4-bit adder with carry out to design a 4-bit increment-by-5 circuit with carry out that adds the binary value 0101 to its 4-bit input. The function to be implemented is $S = A + 0101$.

4. Design a combinational circuits that compares two 4-bit unsigned numbers A and B to see whether B is greater than A. The circuits has on output X, so that $X=1$ if $A < B$ and $X=0$ if $A \geq B$.