

2. Using 8-bit 2's complement binary arithmetic, perform the following calculations:
- a) $53 - 30$ (1)
 - b) $30 - 53$ (1)
 - c) $30 + (-53)$ (1)

Answer:

$53 = 00110101$, $30 = 00011110$ and $-53 = 11001011$

a)

$$\begin{array}{r} 00110101 \\ - 00011110 \\ \hline 00010111 \end{array}$$

b)

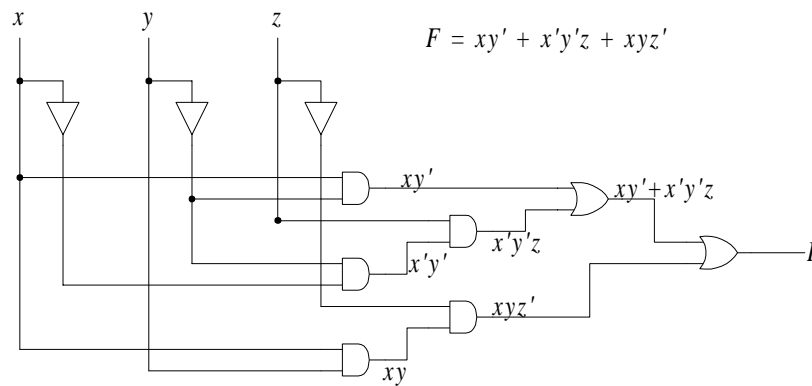
$$\begin{array}{r} 00011110 \\ - 00110101 \\ \hline 11101001 \end{array}$$

c)

$$\begin{array}{r} 00011110 \\ + 11001011 \\ \hline 11101001 \end{array}$$

3. Using 2-input AND gates, 2-input OR gates, and NOT gates, construct the circuit for the function $F = xy' + x'y'z + xyz'$. (5)

Answer



4. Write the truth table for the function $F = xy' + x'y'z + xyz'$. (4)

Answer

x	y	z	F
0	0	0	0
0	0	1	1
0	1	0	0
0	1	1	0
1	0	0	1
1	0	1	1
1	1	0	1
1	1	1	0