Question 3:

$20_{10} \rightarrow 16 + 4 = 00010100_2$

$65_{10} \rightarrow 64 + 1 = 01000001_2$

$$\begin{array}{r} 00010100_2 \rightarrow (20) \\ +\ 01000001_2 \rightarrow (65) \\ \hline \boxed{01010101} \rightarrow (85_{10}) \end{array}$$

Blank 1 = 00010100
Blank 2 = 01000001
Blank 3 = 01010101

Question 4:

$75_{10} \rightarrow 64 + 8 + 2 + 1 = 01001011_2$

$-75 \rightarrow 10110101_2$ (By taking 2's complement)

$44_{10} \rightarrow 32 + 8 + 4 = 00101100_2$

$$\begin{array}{r} 10110101_2 \rightarrow (-75_2) \\ +\ 00101100_2 \rightarrow (44_2) \\ \hline \boxed{11100001}_2 \rightarrow (-31_{10}) \end{array}$$

Blank 1 = 10110101_2
Blank 2 = 00101100_2
Blank 3 = 11100001_2

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Question 1 8

$76_{10} \rightarrow 64+8+4 = 01001100_2$

$45_{10} \rightarrow 32+8+1+1 = 00101101_2$

$-45_{10} = 11010011_2$ (by taking 2's complement)

$$\begin{array}{r} 01001100_2 \leftarrow (76) \\ + \ 11010011_2 \leftarrow (-45) \\ \hline 10011111_2 \rightarrow -97_{10} \end{array}$$

Blank 1 = 01001100_2
Blank 2 = 00101101_2
Blank 3 = 10011111_2

Question 2 0

$13_{10} \rightarrow 8+4+1 = 00001101_2$

$-13_{10} \rightarrow 11111001$ (by taking 2's complement)

$29_{10} \rightarrow 16+8+4+1 = 00011101_2$

$-29_{10} \rightarrow 11100011$

$$\begin{array}{rl} 00001101_2 & \rightarrow (-13) \\ + \ 11100011_2 & \rightarrow (-29) \\ \hline 11010110_2 & \end{array}$$

-42_{10}