

Question 1 (2 pt):

Convert 27.3_{10} in base 2. Round to the correct number of significant digits.

$$27 = 11011$$

$\log(10)/\log(2) \sim 3$ rounded up to 4.

$$\begin{array}{ll} .3 * 2 = 0.6 & 0 \\ .6 * 2 = 1.2 & 1 \\ .2 * 2 = 0.4 & 0 \\ .4 * 2 = 0.8 & 0 \\ .8 * 2 = 1.6 & 1 \end{array}$$

We get 11011.0100_2

Question 2 (2 pt):

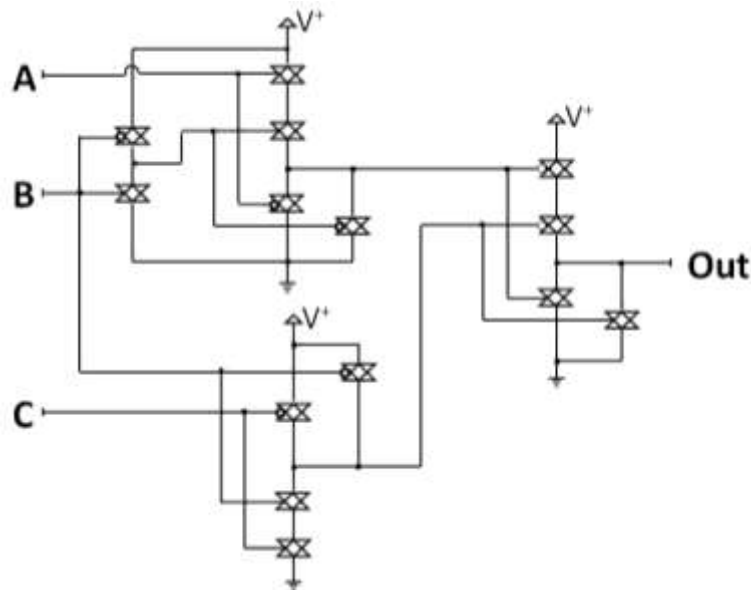
Perform the following subtraction: $39A0_{16} - 2CEB_{16}$.
Give the answer in hexadecimal.

$$\begin{array}{r} 0011\ 1001\ 1010\ 0000 \\ - \underline{0010\ 1100\ 1110\ 1011} \text{ (2's complement)} \\ \hline 0011\ 1001\ 1010\ 0000 \\ + \underline{1101\ 0011\ 0001\ 0101} \\ \hline 0000\ 1100\ 1011\ 0101 \end{array}$$

The answer in hexadecimal is $0CB5_{16}$.

Question 3 (2 pt):

Write the logic function corresponding to the circuit shown below implemented in TTL technology.



Answer is $[AB' + (BC)']'$