

HW3 Problems

0123456789ABCDEF

$$1. \quad 9_{10} + C_{16}$$

$$C_{16} = \begin{array}{r} 12 \\ 11 \\ 10 \\ 0110 \\ \hline 6 \end{array}$$

$$\begin{aligned} 2^4 &= 16 \\ 2^3 &= 8 \\ 2^5 &= 32 \\ 2^6 &= 64 \\ 2^7 &= 128 \end{aligned}$$

$$9_{10} = \begin{array}{r} 1 \\ 1 \\ 0 \\ 1 \\ 0 \\ 1 \\ 0 \\ 1 \\ \hline 64 + 16 + 8 + 2 + 1 \end{array}$$

$$64 + 16 = 80$$

9₁₀ with 8 places: b01011011

$$b'1100b'0110$$

$$+ b'01011011$$

$$\begin{array}{r} b'10010001 = 256 + 32 + 1 = 289 \\ \hline 256 + 32 + 2 + 1 \end{array}$$

$$2. \quad 11_8 - 11_{10}$$

$$11_8 = b'1001$$

$$11_8 = 1 + 8 = 9$$

$$11_{10} = b'1011$$

$$b'1001$$

$$+ b'1011$$

$$b'11100 = 4 + 8 + 16 = \boxed{b'28}$$