

HW 3

Zoe Fiddler

1) $91_{10} + 16_{16}$

$$\begin{array}{r} \text{error} = 01011011 + \overbrace{1100}^C \overbrace{0110}^6 \\ \cdot \\ \begin{array}{r} 01011011 \\ 11000110 \\ \hline 100100001 \end{array} = 1 + 32 + 256 = \boxed{289} \end{array}$$

USQ0

2) $11_8 - 11_{16} = 01001 - 01011$

$$\begin{array}{r} 01001 \\ - 01011 \\ \hline 10100 \quad \bar{x} \\ 10101 \leftarrow -x \end{array}$$

$$\begin{array}{r} \text{ISQ0} \quad 01001 \\ + 10101 \\ \hline 11110 \end{array} = 00001 + 1 = 00010 \quad \neq$$

-2

3) $12.3125_{10} + 0110_{12Q2}$

$$\begin{array}{r} 01100.0101 \\ + 00001.0000 \\ \hline 01101.0101 \end{array} = \boxed{13.8125}$$

USQ4

4) $5.75_{10} - 7.125_{10}$

$$\begin{array}{r} 0101.110 - 0111.0010 \\ \hline 10001101 \quad \bar{x} \\ 1000.1110 \quad -x \end{array}$$

USQ3
14Q4

$$\begin{array}{r} 0101.1100 \\ + 1000.1110 \\ \hline 11101010 \end{array}$$

$$\begin{array}{r} 0001.0100 \\ 0001.0100 \\ \hline 0001.0100 = \boxed{-1.375} \end{array}$$

$$5) 9_{10} \cdot 3_{10} =$$

~~no~~

$$\begin{array}{r} 3_{10} \quad 0011 \\ 9_{10} \quad 1001 \\ \hline 01001 \\ 10010 \\ \hline 11011 \end{array}$$

0400

0520

$$= 27_{10}$$

$$6) -5_{10} \cdot -6_{10} =$$

$$\begin{array}{r} 0101 \cdot 0110 \\ 1010 \cdot 1001 \\ \hline 1011 \cdot 1010 \end{array}$$

~~no~~

~~no~~

$$\begin{array}{r} 1011 \\ 1010 \\ \hline 111010 \\ 111010 \\ \hline 0000 \\ 1010 \\ \hline 111110 \end{array}$$

$$6) -5_{10} \cdot$$

$$-6_{16}$$

$$= \begin{array}{r} 0101 \\ 1010 \\ \hline 1011 \end{array}$$

$$\begin{array}{r} 0110 \\ 1001 \\ \hline 1010 \end{array}$$

$$\underline{I4Q0}$$

$$\begin{array}{r} 10010010010011101 \\ \hline 1111111011 \\ 0000 \end{array}$$

$$11111011$$

$$1111011$$

$$111011$$

$$11011$$

$$\underline{1011}$$

$$01100011110, \underline{I8Q0}$$

$$= \boxed{d30}$$

$$7) 95_{10} \cdot 2.625_{10}$$

$$= 1001.1000 \cdot 0010.1010$$

$$V_4Q_4$$

$$1001.1000$$

$$\underline{0010.1010}$$

$$10011000$$

$$110011000$$

$$\underline{10011000}$$

$$00011000.11110000$$

$$V_8Q_8$$

$$= \boxed{d24.9375}$$

$$8) -1.25_{10} \cdot 3.5_{10}$$

$$= \begin{array}{r} 001.01 \\ 11010 \\ \hline 11011 \end{array} \cdot \begin{array}{r} 011.10 \\ \hline \end{array}$$

I302

$$\begin{array}{r} 110.11 \\ 011.10 \\ \hline 1111011 \\ 111011 \\ 000000 \\ \hline \end{array}$$

$$\begin{array}{r} x \quad 111011.1000 \\ \overline{x} \quad 000100.0101 \\ -x \quad 000100.0110 \\ \hline \end{array} \quad \begin{array}{l} \text{I604} \\ \\ \end{array}$$

$$= \boxed{-4.375}$$