

Comp Arch HW3

$$\begin{array}{r}
 1.) \quad 001011011_2 = 91_{10} \\
 + 011000110_2 = 66_{16} \\
 \hline
 0100100001_2 = \boxed{289_{10}}
 \end{array}$$

$$\begin{array}{r}
 2.) \quad \begin{array}{l} 01001_2 = 11_8 \\ - 01011_2 = 11_{10} \\ - 0010_2 = \boxed{-2_{10}} \end{array} \quad \begin{array}{l} 01001_2 \\ + 10101_2 \\ \hline 1110_2 \end{array}
 \end{array}$$

$$\begin{array}{r}
 3.) \quad 01100.0101_2 = 12.3125_{10} \\
 + 0001.1000_2 = 0110_{12.02} \\
 \hline
 1101.1101_2 = \boxed{13.8125_{10}}
 \end{array}$$

$$\begin{array}{r}
 4.) \quad 0101.110 = 5.75_{10} \\
 + 1000.111 = -7.125_{10} \\
 \hline
 1110.101 = \boxed{-1.375_{10}}
 \end{array}$$

$$\begin{array}{r}
 5.) \quad 01001_2 = 9_{10} \\
 \times 0011_2 = 3_{10} \\
 \hline
 1001 \\
 10010 \\
 \hline
 11011_2 = \boxed{27_{10}}
 \end{array}$$

$$\begin{array}{r}
 6.) \quad \cancel{1011}_2 = -5_{10} \\
 \times 1010_2 = -6_{10} \\
 \hline
 11110110 \\
 11110110 \\
 \hline
 000 \\
 11011000 \\
 \hline
 110110000 \\
 110110000 \\
 \hline
 101100000 \\
 101100000 \\
 \hline
 00011110_2 = \boxed{30_{10}}
 \end{array}$$

$$\begin{array}{r}
 7.) \quad \cancel{01001.100_2 = 9.5_{10}} \\
 \times \cancel{00010.001_2 = 2.625_{10}} \\
 \hline
 \cancel{000001001100} \\
 \hline
 \cancel{000} \\
 \hline
 \cancel{000} \\
 \hline
 \cancel{010011000000} \\
 \hline
 \cancel{10100.001100}
 \end{array}$$

$$\begin{array}{r}
 8.) \quad \cancel{110.11_2 = -1.25_{10}} \\
 \times \cancel{011.10_2 = 3.5_{10}} \\
 \hline
 101110110 \\
 11101100 \\
 \hline
 11011000 \\
 11011000 \\
 \hline
 1011.1010 = \boxed{-4.375_{10}}
 \end{array}$$

$$\begin{array}{r}
 01001.100_2 = 9.5_{10} \\
 00010.101_2 = 2.625_{10} \\
 \hline
 01001100 \\
 0100110000 \\
 \hline
 0000 \\
 010011000000 \\
 \hline
 011000.111100_2 = \boxed{24.9375_{10}}
 \end{array}$$