

7)  $1504 \rightarrow 9.5_{10} = 01001.1000$

$2.625_{10} = 00010.1010$

$$\begin{array}{r}
 01001.1000 \\
 00010.1010 \\
 \hline
 010011000 \\
 010011000 \\
 \hline
 010011000 \\
 010011000 \\
 \hline
 11000.11110000
 \end{array}$$

$16 + 8 + .5 + .25 + \frac{1}{8} + \frac{1}{16}$

$24.9375$

8)  $-1.25_{10} = 0001.0100 \rightarrow 1110.1011 + 1 = 1110.1100$

$3.5_{10} = 0011.1000$

$$\begin{array}{r}
 1110.1100 \\
 0011.1000 \\
 \hline
 1110110000 \\
 1111101100 \\
 \hline
 1111101100 \\
 1111101100 \\
 \hline
 101111011.10100000
 \end{array}$$

out  $1011.1010$

$-4.375$

$$\begin{array}{r}
 0100.0101 \\
 +1 \\
 0100.0110
 \end{array}$$



4) use I4Q4  $5.75_{10} = 0101.1100$

$7.125 = 0111.0010 \rightarrow$  to negative  $= 1000.1101$

$1000.1110 = -7.125$

$$\begin{array}{r} 0101.1100 \\ + 1000.1110 \\ \hline 1110.1010 \end{array}$$

$\rightarrow 0001.0101$

$0001.0110 \rightarrow \boxed{-1.375}$

5)  $9_{10} = 1001_2$

$3_{10} = 0011_2$

$$\begin{array}{r} 1001 \\ * 0011 \\ \hline 11001 \\ 1001 \\ \hline 0000 \end{array}$$

$0000 \rightarrow$

$0000$

$0011011 = 1+2+8+16 = \boxed{27}$

6)  $-5_{10} = 0101 \rightarrow 01010$

$\begin{array}{r} 1 \\ 1011 \\ \hline \end{array}$

$-6_{10} = 0110 \rightarrow 1001$

$\begin{array}{r} 1 \\ 1010 \\ \hline \end{array}$

$$\begin{array}{r} 1010 \\ * 1010 \\ \hline 0000 \\ 1011 \\ 0000 \\ 1011 \\ \hline 1101110 \end{array}$$

4

$$\begin{array}{r} 1111011 \\ 1111010 \\ \hline 0000000 \\ 1111011 \\ \hline 0 \end{array}$$

$$\begin{array}{r} 1111011 \\ 1111011 \\ \hline 1111011 \\ 1111011 \\ \hline 1111011 \\ 1111011 \\ \hline 1111111110 \end{array}$$

$$\begin{array}{r} 111011 \\ 111010 \\ \hline 111011 \\ 111011 \\ \hline 111111 \\ 111111 \\ \hline 000011110 \end{array}$$

$7+8+16$

$000011110$

$16+8+4+2 = \boxed{30}$



# Comparch Hw3

1)  $112791 > 64$

so  $91 - 64 = 27$   
 $2^6$

$27 < 32$  so 0

$27 - 16 = 11$

$11 - 8 = 3$

$3 < 4$  so 0

$3 - 2 = 1$

$1 - 1 = 0$

1 0 1 1 0 1 1

7 digits

$6_{16} = 28$

$11010110$

$13 \cdot 16 + 6$

$$\begin{array}{r} 11010110 \\ 1011011 \\ \hline 100110001 \end{array}$$

$256 + 32 + 16 + 1 = 305$

$$\begin{array}{r} 11010110 \\ 1111011 \\ \hline 101010001 \end{array}$$

$256 + 64 + 16 + 1 = 337$

2)  $11_8 = 8 + 1 = 9 = 1001$

$11_{10} = 1011$

switch sign

0100

+

0101

$$\begin{array}{r} 1001 \\ + 0101 \\ \hline 1110 \end{array}$$

switch sign

0010  $\rightarrow -2$

3)  $I2Q2 = 2$  before, 2 after

use  $110$   
 $.3125 = \frac{1}{4} + \frac{1}{16}$

$I4Q4$  so  $1100.0101$  in  $I4Q4$   
 $12.3125$

$0110 I2Q2 \rightarrow I4Q4 = 00011000$   
 $1.5$

$$\begin{array}{r} 1100.0101 \\ + 0001.1000 \\ \hline 1101.1101 \end{array}$$

✓

$8 + 4 + 1 + .5 + .25 + .0625$

$13.8125$