

# COMPARCH HW03

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1 |  $91_{10} + C6_{16}$

(a)  $91_{10} = 1011011_2$  (unsigned)  
U7Q0

$C6_{16} = 126_{10} = 11000110_2$  (unsigned)  
U8Q0

(b) 
$$\begin{array}{r} 1011011 \\ + 11000110 \\ \hline 10001000110_2 \end{array}$$
  
(unsigned)  
U8Q0

(c) 
$$\begin{array}{r} 10001000110_2 \\ \hline 10001000110_2 \end{array} = 417_{10}$$

2 |  $11_8 - 11_{10}$

(a)  $11_8 = 1001_2 = 9_{10} = 01001_2$   
U4Q0 15Q0

$11_{10} = 1011_2 \rightarrow -11 = 10101_2$  (signed)  
15Q0

(b) 
$$\begin{array}{r} 01001 \\ + 10101 \\ \hline 11110_2 \end{array}$$
  
15Q0  $\Rightarrow$   $-2_{10}$   
-FLIP-  
00001 + 1 = -2

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

(a)  $12.3125_{10} = 601100.0101_{15Q4}$

$0110_{12Q2} = \cancel{501100} 601.10_{12Q2} = 600001.1000_{15Q4}$

(b) 
$$\begin{array}{r} 601100.0101 \\ + 600001.1000 \\ \hline 61101.1101_{15Q4} \end{array} \Rightarrow 13.8125_{10}$$

$$\underline{4} \mid 5.75_{10} - 7.125_{10}$$

(c)  $575_{10} = 0101,110_2$  I4Q3  
~~10~~

$$-7.125_{10} = -(7.125_{10}) = -(0111.001) \Rightarrow 1000.110 + 1$$

(b)

0	1	0	1	1	0
1	0	0	0	1	1
<hr/>					
1	1	1	0	1	0
=					
negative					
0	0	0	1	0	1

1110.101<sub>2</sub>  
 ↓↓ I4Q3

$$-1.375_{10}$$

$5 \mid 9_{10} \cdot 3_{10} \leftarrow \text{That's a } 3$

(a)  $9_{10} \Rightarrow 1001_2$  (unsigned)  $04Q0$   
 $3_{10} \Rightarrow 0011_2$  (unsigned)  $04Q0$

(b)

*	0	1	0	0	1	$_{10}$ USQ0
	0	0	0	1	1	$_{10}$ USQ0
	0	1	0	0	1	
	0	1	0	0	1	
	0	1	1	0	1	$_{10}$ USQ0

16 8 4 2 1

(c)  $11011_2$   
 $\Downarrow$   
 $27_{10}$

6  $(-5)_{10} \cdot (-6)_{16}$

(a)  $(-5)_{10} = 1011_2$  (signed) 1400  
 $(-6)_{10} = 1010_2$  (signed) 1400

[illegible]

© 00011110<sub>2</sub>  
 ↓  
 30<sub>10</sub>



