EECE 320 - hwk 1 - solution

Problem 1

Decimal	Octal	Hexadecimal	Unsigned binary	Signed Magnitude	Signed 1's Complement	Signed 2's Complement
37,75	45,6	25.C	/	/	/	0100101.11
-28,875	43.1	E3.2	/	/	/	100011.001
-56	710	C8	/	1 0011 000	11000111	11001000
120.25	2614.2	58C.4	/	/	/	0101 1000 1100 0100
181	265	B5	10110101	/	/	/
-84	254	AC	/	11010100	10101011	10101100
85	125	55	01010101	/	/	/
-13,5	62.40	F2.8	/	1101.1	1010.0111	1010.1000
1,625	76.3	E.7	/	1.101	1110.010	1110.011

Problem 2

a)
$$\begin{array}{r} 9999 \\ -\,4653 \\ \hline 5346 \end{array}$$

b) 10's complement = 5346 + 1
= 5347

7218 + 5347 = 1 2565

drop

7218 - 4653 = 2565

Problem 3

a) $0\,|\,0010 - 0\,|\,0101$

$$\begin{array}{r} 0\,|\,0010 \\ +\ 1\,|\,0\,|\,0\,|\,1\,|\,1 \\ \hline 1\,|\,1\,|\,1\,|\,0\,|\,1 \end{array}$$

b) $1101 - 100110$

$$\begin{array}{r} 1\,1\,1\,1\,|\,0\,|\,1 \\ 0\,1\,1\,0\,|\,1\,|\,0 \\ \hline \times\ 1\,0\,1\,1\,|\,1\,|\,1 \end{array}$$

Problem 4

$$\begin{array}{r} \textcircled{1}\,\textcircled{1}\,\textcircled{1}\,\textcircled{1}\,\textcircled{1}\,\textcircled{1} \\ 4\,E\,B\,3\,F\,7\,E \\ 3\,F\,5\,F\,D\,4\,D \\ \hline 9\,E\,1\,3\,C\,C\,B \end{array}$$

Problem 5

a)

$$\begin{array}{r} 1\,0\,0\,1 \\ +\ 0\,1\,1\,0 \\ \hline 1\,1\,1\,1 \\ +\ 0\,1\,1\,0 \\ \hline 0001\ \ 0\,1\,0\,1 \\ 1 \qquad 5 \end{array}$$

$9+6=15$

b)

$$\begin{array}{r} 0\,1\,1\,0 \\ +\ 0\,1\,1\,1 \\ \hline 1\,1\,0\,1 \\ +\ 0\,1\,1\,0 \\ \hline 0001\ \ 0\,0\,1\,1 \\ 1 \qquad 3 \end{array}$$

$6+7=13$

c)

$$\begin{array}{r} 1001 \\ +1001 \\ \hline 1\,0\,0\,1\,0 \\ +\ 0\,1\,1\,0 \\ \hline 1\ \ 1\,0\,0\,0 \\ 1 \qquad 8 \end{array}$$

$9+9=18$

d)

$$\begin{array}{r} 0\,1\,0\,1\ \ 1001 \\ 1001\ \ 0\,1\,1\,0 \\ \hline 1\,1\,1\,1\ \ 1\,1\,1\,1 \\ +0\,1\,1\,0\ \ +0\,1\,1\,0 \\ \hline 1\ \ 0\,1\,0\,1\ \ 0\,1\,0\,1 \\ 1 \qquad 5 \qquad 5 \end{array}$$

$$\begin{array}{r} 59 \\ +96 \\ \hline 155 \end{array}$$