

$$7.(e) \quad \begin{array}{r} 134 \\ + 66 \\ \hline 200 \end{array}$$

$$7.2e) \quad \begin{array}{r} 126 \\ - 64 \\ \hline 62 \end{array}$$

$$\begin{array}{r}
 128 64 32 16 8 4 2 1 \\
 0 \ 1 \ 1 \ 1 \ 1 \ 1 \ 0 \\
 - 0 \ 1 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \\
 \hline
 \end{array}
 \quad
 \begin{array}{r}
 1 \\
 0 \ 1 \ 1 \ 1 \ 1 \ 1 \ 0 \\
 + 1 \ 1 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \\
 \hline
 0 \ 0 \ 1 \ 1 \ 1 \ 1 \ 0 = 62
 \end{array}$$

↓

$2^8$ , complement  
 $1 \ 0 \ 1 \ 1 \ 1 \ 1 \ 1$   
 $+ 1$   
 $\hline$   
 $1 \ 1 \ 0 \ 0 \ 0 \ 0 \ 0$

$$7.3e) \quad \underline{\times 125}^{63}$$

$$\begin{array}{r} \overset{6}{\cancel{3}} \\ \times 125 \\ \hline 00111111 \end{array}$$

2011111

$$\begin{array}{r}
 & 1 & 1 & 1 & 1 & 1 \\
 & 1 & 1 & 1 & 1 & 1 \\
 \hline
 0 & 0 & 0 & 1 & 1 & 1 & 0 & 1 & 0 & 0 & 0 & 0 & 1 & 1 \\
 - & - & - & 4 & 8 & 16 & 32 & 64 & 128 & 256 & 512 & 1024 & 2048 & 4096
 \end{array}$$

110

4096

2048

1024

512

120  
14

17

13

787

7.4c)

5 125

$$\begin{array}{r}
 168421 \\
 \times 11001 \\
 \hline
 168421 \\
 168421 \\
 \hline
 1852621
 \end{array}$$

7.6 a.  $00000111 \Rightarrow$

R.  $-36 = 100100100$   
 $\begin{array}{r} 00100100 \\ 1101101 \\ +1 \\ \hline 11011100 \end{array}$

7.8 a.  $127 \rightarrow -128$

b.  $32767 \rightarrow -32768$

7.7 a.  $0001000$   
 $\begin{array}{r} 168421 \\ \hline 16+4+2 = 22 \end{array}$

e.  $11101110$

$00010001$   
 $\begin{array}{r} +1 \\ \hline 00010010 \end{array}$   $\Rightarrow -18$

7.9 a.  $\begin{array}{r} 5 \\ +7 \\ \hline 12 \end{array}$   $\begin{array}{r} 111 \\ 00101 \\ +00111 \\ \hline 01100 \end{array}$   $\boxed{00001100}$

R.  $\begin{array}{r} -28 \\ +38 \\ \hline 10 \end{array}$   $\begin{array}{r} 10011100 \\ 11100011 \\ +1 \\ \hline 11100100 \\ +00100110 \\ \hline 00001010 \end{array}$   $\begin{array}{l} 28 \\ = -28 \\ = 38 \\ \hline 10 \end{array}$   $\boxed{10 \checkmark}$

7.11g

$$\begin{array}{r}
 & \overset{1}{A} \overset{1}{0} \overset{1}{4} 9 \\
 & \overset{1}{0} A F C \\
 \hline
 & \boxed{A B 4 5_{16}}
 \end{array}$$

7-12c

$$\begin{array}{r}
 1 B \\
 - 0 6 \\
 \hline
 \boxed{1 5_{16}}
 \end{array}$$

7-13

$$\begin{array}{r}
 2 C \overset{1}{8} D_4 \\
 + 6 4 \frac{1}{16} \\
 \hline
 \boxed{2 C F 1}
 \end{array}$$

$$\begin{array}{r}
 64 32 16 8 4 2 1 \\
 100_0 = 110,0100_2 \\
 6 4 \frac{1}{16}
 \end{array}$$

7-15

Since the problem says BCD

Binary coded Decimal and not Hexadecimal  
 the digits can only be 0 - 9.

- a. 79\*  $\Rightarrow$  Valid
- b. 5A  $\Rightarrow$  Not Valid
- c. D2  $\Rightarrow$  Not Valid
- d. 48  $\Rightarrow$  Valid
- e. B6  $\Rightarrow$  Not Valid
- f. 49  $\Rightarrow$  Valid