


ECEn/CS 224

Chapter 2 Homework Solutions

2.1 $242_{10} = \underline{2} \mid \underline{242}$ $= 11110010_2$

<u>121</u>	0
<u>60</u>	1
<u>30</u>	0
<u>15</u>	0
<u>7</u>	1
<u>3</u>	1
<u>1</u>	1
<u>0</u>	1



$242_{10} = \underline{3} \mid \underline{242}$ $= 22222_3$

<u>80</u>	2
<u>26</u>	2
<u>8</u>	2
<u>2</u>	2
<u>0</u>	2

$242_8 = \underline{8} \mid \underline{242}$ $= 362_8$

<u>30</u>	2
<u>3</u>	6
<u>0</u>	3

$242_{16} = \underline{16} \mid \underline{242}$ $= F2_{16}$

<u>15</u>	2
<u>0</u>	15(F)

$$\begin{array}{r}
 2 \overline{) 71} \\
 \underline{35} 1 \\
 \underline{17} 1 \\
 \underline{8} 1 \\
 \underline{4} 0 \\
 \underline{2} 0 \\
 \underline{1} 0 \\
 \underline{0} 1
 \end{array}$$



$$\begin{array}{r}
 .93 \\
 \times 2 \\
 \hline
 .86 + 1 \\
 \times 2 \\
 \hline
 .72 + 1 \\
 \times 2 \\
 \hline
 .44 + 1 \\
 \times 2 \\
 \hline
 .88 + 0 \\
 \times 2 \\
 \hline
 .76 + 1 \\
 \times 2 \\
 \hline
 .52 + 1
 \end{array}$$



$$71.93_{10} = 1000111.111011_2$$

$$\begin{array}{r}
 5 \overline{) 71} \\
 \underline{14} 1 \\
 \underline{2} 4 \\
 \underline{0} 2
 \end{array}$$

$$\begin{array}{r}
 .93 \\
 \times 5 \\
 \hline
 .65 + 4 \\
 \times 5 \\
 \hline
 .25 + 3 \\
 \times 5 \\
 \hline
 .25 + 1 \\
 \times 5 \\
 \hline
 .25 + 1 \\
 \times 5 \\
 \hline
 .25 + 1 \\
 \times 5 \\
 \hline
 .25 + 1
 \end{array}$$

$$71.93_{10} = 241.431111_5$$

$$\begin{array}{rcl}
 2.3 & 17.522_{10} = & \begin{array}{r} \underline{2} \mid \underline{17} \\ \underline{18} \quad 1 \\ \underline{14} \quad 0 \\ \underline{12} \quad 0 \\ \underline{11} \quad 0 \\ \underline{10} \quad 1 \end{array} & \begin{array}{r} .522 \\ \times \underline{2} \\ .044 \\ \times \underline{2} \\ .088 \\ \times \underline{2} \\ .176 \end{array} & + & \begin{array}{l} 1 \\ 0 \\ 0 \end{array}
 \end{array}$$

$$17.522_{10} = 10001.10_2$$

$$\begin{array}{cccccc}
 2.4 & \underline{0110} & \underline{0100} & \underline{1001} & \underline{0000} & \underline{0111}_2 \\
 & 6 & 4 & 9 & 0 & 7_{16}
 \end{array}$$

$$\begin{array}{ccccccc}
 2.5 & \underline{D} & \underline{E} & \underline{A} & \underline{F} & \underline{\cdot} & \underline{B} & \underline{E} & \underline{E}_{16} \\
 & \text{----} & \text{----} & \text{----} & \text{----} & \text{----} & \text{----} & \text{----} & \text{----} \\
 & 1101 & 1110 & 1010 & 1111 & 1011 & 1110 & 1110_2
 \end{array}$$

$$\begin{array}{cccc}
 2.8 & \underline{5} & \underline{A} & \underline{6} & \underline{F}_{16} \\
 & \text{-----} & \text{-----} & \text{-----} & \text{-----} \\
 & 0101 & 1010 & 0110 & 1111_2 \\
 \\
 & \underline{0} & \underline{101} & \underline{101} & \underline{001} & \underline{101} & \underline{111}_2 \\
 & 5 & 5 & 1 & 5 & 7_8
 \end{array}$$

$$2.9 \quad 422_{10} = 0100 \ 0010 \ 0010_{\text{BCD}}$$

$$\begin{array}{cccc}
 2.11 & \underline{0001} & \underline{0101} & \underline{0010}_{\text{BCD}} \\
 & 1 & 5 & 2_{10} = 1001 \ 1000_2
 \end{array}$$

$$\begin{array}{cccccccccccccccc}
 2.14 & \text{H} & \text{e} & \text{l} & \text{l} & \text{o} & , & \text{S} & \text{P} & \text{w} & \text{o} & \text{r} & \text{l} & \text{d} & . & \text{C} & \text{R} & \text{L} & \text{F} \\
 & 48 & 65 & 6\text{C} & 6\text{C} & 6\text{F} & 2\text{C} & 20 & 77 & 6\text{F} & 72 & 6\text{C} & 64 & 2\text{E} & 0\text{D} & 0\text{A}_{16}
 \end{array}$$