

Exercise 3 - Solutions:

SOLUTIONS :

$$101_{10} \rightarrow 101_2$$

$$101_{10} \rightarrow \text{---} 0$$

$$\begin{array}{r|l} 2 & 101 \\ \hline 2 & 50 \text{ r } 1 \end{array}$$

$$\begin{array}{r|l|l} 001 & 100 & 101 \\ \hline 1 & 4 & 5 \end{array}$$

$$\begin{array}{r|l} 2 & 25 \text{ r } 0 \end{array}$$

$$\begin{array}{r|l|l} 1 & 4 & 5 \end{array}$$

$$\begin{array}{r|l} 2 & 12 \text{ r } 1 \end{array}$$

$$\boxed{101_{10} \rightarrow 145_8}$$

$$\begin{array}{r|l} 2 & 6 \text{ r } 0 \end{array}$$

$$\begin{array}{r|l} 2 & 3 \text{ r } 0 \end{array}$$

$$\begin{array}{r|l} 2 & 1 \text{ r } 1 \end{array}$$

$$101_{10} \rightarrow \text{---} 16$$

$$\begin{array}{r|l} 2 & 0 \text{ r } 1 \end{array}$$

$$\begin{array}{r|l} 2 & 0 \text{ r } 1 \end{array}$$

$$\boxed{101_{10} \rightarrow 0110 \ 0101_2}$$

$$\begin{array}{r|l} 0110 & 0101 \\ \hline 6 & 5 \end{array}$$

$$\begin{array}{r|l} 6 & 5 \end{array}$$

$$\boxed{101_{10} \rightarrow 65_{16}}$$

$$215_8 \rightarrow \text{---} 2$$

$$215_8 \rightarrow \text{---} 16$$

$$2 = 010$$

$$\begin{array}{r|l} 1000 & 1101 \\ \hline 8 & 13 = D \end{array}$$

$$1 = 001$$

$$8 \quad | \quad 13 = D$$

$$5 = 101$$

$$\boxed{215_8 \rightarrow 1000 \ 1101_2}$$

$$\boxed{215_8 \rightarrow 8D_{16}}$$

$$215_8 \rightarrow \text{---} 10$$

128	64	32	16	8	4	2	1
1	0	0	0	1	1	0	1

$$128 + 8 + 4 + 1 = 141$$

$$215_8 \rightarrow 141_{10}$$

$$1A_{16} \rightarrow \text{---} 2$$

$$1A_{16} \rightarrow \text{---} 8$$

$$1 = 0001$$

$$A = 1010$$

000	011	010
0	3	2

$$1A_{16} \rightarrow 0001\ 1010_2$$

$$1A_{16} \rightarrow 32_8$$

$$1A_{16} \rightarrow \text{---} 10$$

16	8	4	2	1
1	0	1	0	0

$$1A_{16} \rightarrow 26_{10}$$

$$16 + 8 + 2 = 26$$

$$1010111_2 \rightarrow \text{---}_{10}$$

64 32 16 8 4 2 1

1 0 1 0 1 1 1

$$1010111_2 \rightarrow 87_{10}$$

$$64 + 16 + 4 + 2 + 1 = 87$$

$$1010111_2 \rightarrow \text{---}_8$$

$$1010111_2 \rightarrow \text{---}_{16}$$

001	010	111
1	2	7

0101	0111
5	7

$$1010111_2 \rightarrow 127_8$$

$$1010111_2 \rightarrow 57_{16}$$

$$257_8 \rightarrow \text{---}_2$$

$$257_8 \rightarrow \text{---}_{16}$$

$$2 = 010$$

$$5 = 101$$

$$7 = 111$$

$$1010 \mid 1111$$

$$10 = A \mid 15 = F$$

$$257_8 \rightarrow AF_{16}$$

$$257_8 \rightarrow 10101111_2$$

$$257_8 \rightarrow \text{---}_{10}$$

128 64 32 16 8 4 2 1

1 0 1 0 1 1 1 1

$$257_8 \rightarrow 175_{10}$$

$$128 + 32 + 8 + 4 + 2 + 1$$

$$= 175$$

$$11110001_2 \rightarrow \text{---}_{10}$$

$$256 \ 128 \ 64 \ 32 \ 16 \ 8 \ 4 \ 2 \ 1$$

$$1 \ 1 \ 1 \ 1 \ 0 \ 0 \ 0 \ 1 \ 1$$

$$256 + 128 + 64 + 32 + 2 + 1 = 483$$

$$11110001_2 \rightarrow 483_{10}$$

$$11110001_2 \rightarrow \text{---}_8$$

$$11110001_2 \rightarrow \text{---}_{16}$$

$$\begin{array}{c|c|c} 111 & 100 & 011 \\ \hline 7 & 4 & 3 \end{array}$$

$$\begin{array}{c|c|c} 0001 & 1110 & 0011 \\ \hline 1 & 14 = E & 3 \end{array}$$

$$11110001_2 \rightarrow 743_8$$

$$11110001_2 \rightarrow 1E3_{16}$$

$$3AF_{16} \rightarrow \text{---}_2$$

$$3AF_{16} \rightarrow \text{---}_8$$

$$3 = 0011$$

$$A = 1010$$

$$F = 1111$$

$$\begin{array}{c|c|c|c} 001 & 110 & 101 & 111 \\ \hline 1 & 6 & 5 & 7 \end{array}$$

$$3AF_{16} \rightarrow 0011 \ 1010 \ 1111_2$$

$$3AF_{16} \rightarrow 1657_8$$

$$3AF_{16} \rightarrow \text{---}_{10}$$

$$512 \quad 256 \quad 128 \quad 64 \quad 32 \quad 16 \quad 8 \quad 4 \quad 2 \quad 1$$

$$1 \quad 1 \quad 1 \quad 0 \quad 1 \quad 0 \quad 1 \quad 1 \quad 1 \quad 1$$

$$512 + 256 + 128 + 32 + 8 + 4 + 2 + 1 = 943$$

$$\boxed{3AF_{16} \rightarrow 943_{10}}$$

$$299_{10} \rightarrow \text{---}_2$$

$$299_{10} \rightarrow \text{---}_8$$

$$2 \mid 299$$

$$2 \mid 149 \quad r \, 1$$

$$2 \mid 74 \quad r \, 1$$

$$2 \mid 37 \quad r \, 0$$

$$2 \mid 18 \quad r \, 1$$

$$2 \mid 9 \quad r \, 0$$

$$2 \mid 4 \quad r \, 1$$

$$2 \mid 2 \quad r \, 0$$

$$2 \mid 1 \quad r \, 0$$

$$0 \quad r \, 1$$

$$100 \mid 101 \mid 011$$

$$4 \mid 5 \mid 3$$

$$\boxed{299_{10} \rightarrow 453_8}$$

$$299_{10} \rightarrow \text{---}_{16}$$

$$0001 \mid 0010 \mid 1011$$

$$1 \mid 2 \mid 11 = B$$

$$\boxed{299_{10} \rightarrow 100101011_2}$$

$$\boxed{299_{10} \rightarrow 12B_{16}}$$

$$EC_{16} \rightarrow \text{---} 2$$

$$EC_{16} \rightarrow \text{---} 8$$

$$E = 14 = 1110$$

$$C = 12 = 1100$$

011	101	100
3	5	4

$$EC_{16} \rightarrow 1110\ 1100_2$$

$$EC_{16} \rightarrow 354_8$$

$$EC_{16} \rightarrow \text{---} 10$$

$$128\ 64\ 32\ 16\ 8\ 4\ 2\ 1$$

$$1\ 1\ 1\ 0\ 1\ 1\ 0\ 0$$

$$EC_{16} \rightarrow 236_{10}$$

$$128 + 64 + 32 + 8 + 4$$

$$= 236$$

$$101111_2 \rightarrow \text{---} 10$$

$$32\ 16\ 8\ 4\ 2\ 1$$

$$1\ 0\ 1\ 1\ 1\ 1$$

$$101111_2 \rightarrow 47_{10}$$

$$32 + 8 + 4 + 2 + 1$$

$$= 47$$

$$101111_2 \rightarrow \text{---} 8$$

$$101111_2 \rightarrow \text{---} 16$$

101	111
5	7

0010	1111
2	15 = F

$$101111_2 \rightarrow 57_8$$

$$101111_2 \rightarrow 2F_{16}$$

*Learning Leaf*