Brandon Williams
8/31/20
CSC-17

8/31/20 17A Conversion table

1) 127_{10}

Base 16:

$$\begin{array}{r|l} & 7 \\ 16 & 127 \\ & -112 \\ \hline & 15 \end{array}$$

$15_{10} = F$

$7 \times 16^1 + F \times 16^0 = \boxed{7F_{16}}$

16
×7
112

Base 2: $7F_{16}$

$$\underline{7} \quad \underline{F}$$
$$0111 \quad 1111$$

$\boxed{01111111_2}$

Base 8: 1111111_2

$$\underline{001} \quad \underline{111} \quad \underline{111}_2$$
$$1 \quad 7 \quad 7$$

$\boxed{177_8}$

2) Base 8: 10101_2

$$\underline{010} \quad \underline{101}$$
$$2 \quad 5$$

$\boxed{25_8}$

Base 16: 10101

$$\underline{0001} \quad \underline{0101}$$
$$1 \quad 5$$

$\boxed{15_{16}}$

Base 10:

$$\begin{array}{r|l} & 1 \\ 10 & 15 \\ & -10 \\ \hline & 5 \end{array}$$

$1 \times 16^1 + 5 \times 16^0$

$16 + 5 = \boxed{21_{10}}$

3) Base 2: 71_8

$7_8 \quad 1_8$

$111 \quad 001$

$\boxed{111001_2}$

Base 16: 111001

$$\underline{0011} \quad \underline{1001}$$
$$3 \quad 9$$

$\boxed{39_{16}}$

Base 10:

$$\begin{array}{r|l} & 3 \\ 10 & 39 \\ & -30 \\ \hline & 9 \end{array}$$

$3 \times 16^1 + 9 \times 16^0$

$48 + 9 = 57_{10}$

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4) Base 2: AB_{16}

A	B
1010	1011

10101011_2

Base 8: 10101011_2

010	101	011
2	5	3

253_8

Base 10:

1	0	1	0	1	0	1	1
1×2^7	0×2^6	1×2^5	0×2^4	1×2^3	0×2^2	1×2^1	1×2^0

$128 + 0 + 32 + 0 + 8 + 0 + 2 + 1$

$160 + 11$

171_{10}