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Conversion Lab Scratch Work

ABC_{16} = A(10) B(11) C(12)

1010 1011 1100

$2^3\ 2^2\ 2^1\ 2^0$

$= 1010\,1011\,1100_2$

5 2 7 4

$= 5274_8$

$= 5 \times 8^3 + 2 \times 8^2 + 7 \times 8^1 + 4 \times 8^0$

$= 2748$

$10 \times 16^2 + 11 \times 16^1 + 12 \times 16^0$

$= 2748$ ✓

765_8 = 7 6 5

111 110 101

$= 1111\,0101_2$

1 15 5

$= 1F5_{16}$

$= 1 \times 16^2 + 15 \times 16^1 + 5 \times 16^0$

$= 501$

6)

$1101100_2 = \underbrace{110}_{6}\underbrace{1100}_{12}$

$= 154_8$

$= \underbrace{1101}_{6}\underbrace{100}_{12}$

$= 6C_{16}$

$= 6 \times 16^1 + 12 \times 16^0$

$= 108$

$85_{10} = 5 \times 16^1 + 5 \times 16^0$

$= 55_{16}$

$= \underbrace{5}_{0101} \quad \underbrace{5}_{0101}$

$= \underbrace{01}_{1}\underbrace{010}_{2}\underbrace{101}_{5}{}_2$

$= 125_8$

$762_{10} = 2 \times 16^2 + 15 \times 16^1 + 10 \times 16^0$

$= 2FA_{16}$

$= \underbrace{2}_{10} \quad \underbrace{F}_{1111} \quad \underbrace{A}_{1010}$

$= \underbrace{101}_{5}\underbrace{111}_{7}\underbrace{010}_{2}{}_2$

$= 1372_8$

Base 10	Base 2	Base 8	Base 16
127	= 1111111	= 177	= 7F
21	= 10101	= 25	= 15
57	= 111001	= 71	= 39
171	= 10101011	= 253	= AB

$127_{10} = \underline{7} \times 16^1 + \underline{15} \times 16^0$

$= 7F_{16}$

$= \underline{7} \quad \underline{F}$

$\quad 111 \quad 1111$

$= 11111111_2$

$\quad 1\ 7\ 7$

$= 177_8$

$10101_2 = \underline{10}\,\underline{101}$

$\quad 2 \quad 5$

$= 25_8$

$= \underline{10101}$

$\quad 1 \quad 5$

$= 15_{16}$

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

$= 21_{10}$

$71_8 = \underline{7} \quad \underline{8}$

$\quad 111 \quad 100$

$= \underline{111100}_2$

$\quad 3 \quad 12$

$= 3C_{16}$

$= 3 \times 16^1 + 12 \times 16^0$

$= 48 + 12$

$= 60$

AB_{16} = A (10) B (11)

1010 1011

$= 10101011_2$

2 5 3

$= 253_8$

$= 10 \times 16^1 + 11 \times 16^0$

$= 160 + 11$

$= 171_{10}$