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CSC -17A- 48290

Lab 2 Conversions Base 2, 8, 10, 16

Base	10	16	8	2
2, 8, 16	0.25	0.4	0.20	0.0100
2, 10, 16	0.328125	0.54	0.25	0.010101
2, 8, 16		0.25	0.122	0.00100101
2, 10, 16	0.8125	0.D		0.1101

$$0.25_{10} = 0.4_{16} = 0.0100_2 = 0.20_8$$

$$0.25_{10} = 2 \times 10^{-1} + 5 \times 10^{-2}$$

$$0.25 \times 16 = 4.00 \rightarrow 0.25_{10} = 0.4_{16}$$

$$0.4_{16} = 4 \times 16^{-1} = 0.25$$

$$0.4$$

$$0.0100_2$$

$$\underbrace{0.0100}_0 = 2 \times 8^{-1} = 0.25_{10} \checkmark$$

$$0.25_8 = 0.010101_2 = 0.328125_{10} = 0.54_{16}$$

$\begin{array}{r} 0.25 \\ \hline 0.010101 \end{array}$	$\begin{aligned} 0.25_8 &= 2 \times 8^{-1} + 5 \times 8^{-2} \\ &= 0.25 + 0.078125 \\ &= 0.328125 \end{aligned}$	$\begin{aligned} 0.328125 \times 16 &= 5.25 \\ 0.25 \times 16 &= 4.00 \\ 0.25_8 &= 0.54_{16} \end{aligned}$
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$$0.25_{16} = 0.00100101_2 = 0.14453125_{10} = 0.122_8$$

$\begin{array}{r} 0.25 \\ \hline 0.00100101 \end{array}$	$\begin{aligned} 0.25_{16} &= 2 \times 16^{-1} + 5 \times 16^{-2} \\ &= 0.125 + 0.01953125 \\ &= 0.14453125_{10} \end{aligned}$
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$$0.14453125 \times 8 = 1.15625$$

$$0.15625 \times 8 = 1.25$$

$$0.25 \times 8 = 2.00$$

$$0.1125$$

$$0.1101_2 = 0.8125_{10} = 0.D_{16}$$

$$\begin{aligned} 0.1101_2 &= 1 \times 2^{-1} + 1 \times 2^{-2} + 0 \times 2^{-3} + 1 \times 2^{-4} \\ &= 0.5 + 0.25 + 0 + 0.0625 \\ &= 0.8125_{10} \end{aligned}$$

$$0.8125 \times 16 = 13.0 \rightarrow 0.D_{16}$$