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CSC 17A -43320
14 March 2021

Lab 2 Conversions 2, 8, 10, 16

Convert the following bases

1.) 0.25 Base 10 to Base 2, 8, 16

$0.25_{10} \rightarrow 0.4_{16}$

$0.25_{10} \times 16 = 4$

$0.4_{16} \rightarrow .0100_2$

$.0100_2 \rightarrow .20_8$

2.) 0.25_8 to Base 2, 8, 16

$0.25_8 \rightarrow .010101_2$

$0.25_8 \rightarrow .328125_{10}$

$0.25_8 = 2 \times 8^{-1} + 5 \times 8^{-2}$

$= \frac{2}{8} + \frac{5}{64}$

$= 21/64$

$= 0.328125_{10}$

$.010101_2 \rightarrow .54_{16}$

Check

$5 \times 16^{-1} + 4 \times 16^{-2}$

$= \frac{5}{16_{10}} + \frac{4}{256_{10}}$

$= 21/64_{10}$

$= 0.328125_{10}$

3) 0.25 Base 16 to Base 2, 8, 10

$0.25_{16} \rightarrow .0010\ 0101_2$

$.0010\ 0101_2 \rightarrow .112_8$

$0.25_{16} \rightarrow$ ____$_{10}$

$0.25_{16} = 2 \times 16^{-1} + 5 \times 16^{-2}$

$= \frac{2}{16} + \frac{5}{256}$

$= .14453125_{10}$

4.) 0.1101 Base 2 to Base 8, 10, 16

$0.1101_2 \rightarrow .D_{16}$

$0.1101_2 \rightarrow .64_8$

$0.1101_2 \rightarrow .8125_{10}$

$= 1 \times 2^{-1} + 1 \times 2^{-2} + 1 \times 2^{-4}$

$= \frac{1}{2} + \frac{1}{4} + \frac{1}{16}$

$= 0.8125_{10}$