

Convert to NASA Format

$$0.125_{10} \rightarrow .125 \times 16 = \underline{\underline{2.0}}$$

$$= .2_{16} = .1_8 = .001_2$$

$$.001_2 = 0.1_2 \times 2^{-2}$$

Power or Characteristic

MANTISSA
or Fraction

01000000 | 00000000 | 00000000 | 11111110

$$\begin{aligned} 2 &= 0000\ 0010 \\ 1's\ comp\ \sim 2 &= 1111\ 1101 \\ &\quad + 1 \\ 2's\ comp\ - 2 &= \underline{\underline{1111\ 1110}} \end{aligned}$$

Converting to Hex Representation

0100 0000 0000 0000 0000 0000 1111 1110

4 0 0 0 0 0 F E

Negative

~ B F F F F F
+ 1

C 0 0 0 0 0 FE

Convert to NASA Format

$$0.1_{10} \rightarrow \begin{array}{l} 0.1 \times 16 = 1.6 \\ 0.6 \times 16 = 9.6 \\ 0.6 \times 16 = 9.6 \\ \vdots \end{array}$$

$$\rightarrow 0.19999... = 0.19_{16}$$

$$0.19_{16} = 0.0001\ 1001\ 1001\ 1001\ .\ .\ .\ .$$

$$= 0.0001100_2$$

$$= 0.1100_2 \times 2^{-3}$$

$$\begin{array}{l} 3 = 0000\ 0011 \\ \sim 3 = 1111\ 1100 \\ -3 = 1111\ 1101 \end{array}$$

$$\underline{0.110}\ \underline{0110}\ |\ \underline{0110}\ \underline{0110}\ |\ \underline{0110}\ \underline{0110}\ |\ \underline{1111}\ \underline{1101}$$

Convert to Hex Representation

6 6 6 6 6 6 F D

~ 9 9 9 9 9 9 + 1

Negative

9 9 9 9 9 A F D
