Assignment 1 Part 3 (posted 02/09/2022, DUE as assigned on Canvas)

Score (by grader):

(Don't have to type but must be legible - **no credits for any parts I have difficulty reading/understanding**.)

8   (7 points) First represent unsigned decimal real number **81.4140625** in binary, then re-write the binary result more compactly in hex.

Fill in the blanks: **81.4140625** (dec) **=** [   ] (bin) **=** [   ] (hex)

CAUTION: Be sure to *clearly show working* to not risk incurring penalty.

9   (8 points) Represent the decimal value **-321.45** in IEEE 754-1985 ***double*** precision. Show your final answer in *hex*.

CAUTION: Be sure to *clearly show working* to not risk incurring penalty.

10 (6 points) Determine the decimal value that gives **425AD000** in hex when represented in IEEE 754-1985 *single* precision.

CAUTION: Be sure to *clearly show working* to not risk incurring penalty.

425AD000 in binary:

0100 0010 0101 1010 1101 0000 0000 0000

Sign = 0 (positive)

Exponent = $10000100_2 = 132$, so $132 - 127 = 5$

Mantissa (fraction bits) = $1011010 1101 0000 0000 0000$

Value = $(-1)^0 \times 1.10110101101_2 \times 2^5$

$= 110110.101101_2$

Integer part: $110110_2 = 54$

Fraction part: $.101101_2 = \frac{1}{2} + \frac{1}{8} + \frac{1}{16} + \frac{1}{64} = 0.5 + 0.125 + 0.0625 + 0.015625 = 0.703125$

$= 54.703125$

(More writting space where needed - if used, be sure to clearly indicate which part is for which question.)