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# Asg #8

1. $10011.11101$     $2^{-1} + 2^{-2} + 2^{-3} + 2^{-5}$

   $16 + 2 + 1 = 19$     $\frac{1}{2} + \frac{1}{4} + \frac{1}{8} + \frac{1}{32} = \frac{16 + 8 + 4 + 1}{32} = \frac{29}{32}$

   $\boxed{19.90625}$     $= .90625$

2. $0.000001 = 2^{-6} = \frac{1}{64} = .015625$

3. $111.111$     $.111 = 2^{-1} + 2^{-2} + 2^{-3} = \frac{1}{2} + \frac{1}{4} + \frac{1}{8} = \frac{7}{8}$

   $111 = 7$     $\boxed{7.875}$

   $111.111 = 7\frac{7}{8} =$

4. $10000.00001$     $.00001 = 2^{-5} = \frac{1}{32}$

   $= \boxed{16.03125}$

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1   $23.5$     $16\,\underline{|23}$     $= 0 \times 17 - 0001\ 0111$

   $23 = 10111$     $1 - 7$

   $.5 \times 2 = ①0$     $= 10111.1$     normalized $= 1.01111 \times 2^4$

   $32\ bit:$     $4 + 127 = 131$

   $\boxed{0\ 10000011\ 01111\ 0000000000000000000}$     $16\,\underline{|131}$

   $18$     $8 - 3 = 1000\ 0011$

2   $77.5625$     $16\,\underline{|77}$

   $.5625 \times 2 = 1.125$     $4 - D = 0100\ 1101$

   $.125 \times 2 = .25$     $= 1001101.1001 = 1.0011011001 \times 2^6$

   $.25 \times 2 = .5$     $6 + 127 = 133$     $16\,\underline{|133}$

   $.5 \times 2 = 1.0$     $8 - 5 = 1000\ 0101$     $13$

   $= 0\ 1000\ 0101\ 0011011001\ 00\ 00000000000$

3. 12345.125          16 | 12345          = 0x 3039

                      16 | 771 — 9      = 11000000111001

.125 × 2 = .25        16 | 48 — 3

.25 × 2 = .5             3 — 0

.5 × 2 = 1            = 11000000111001.001

                     = 1.1000000111001001 × 2$^{13}$        127 + 13 = 140

= 0  1000 1100   10000001110010010000000          16 | 140
                                                      8 — C
                                          7  = 1000 1100