CSC 317 Exam 2 Review

Given 0x0C000000 =0000 1100 0000 0000 0000 0000 0000 0000

Sign = 0, so positive  
Exponent = 0001 1000 = 8 + 16 = 24, 24-127 = -103

Fraction =1.000000….

1. x 2-103

What if I give you 0x1D20 0000 0000 …..

Convert to binary = 0001 1101 0010 0000 0000 …

Sign = 0, positive  
Exponent – 0011 1010 = 2 + 8 + 16 + 32 = 58, 58-127 = -69  
Fraction = 1.0100 0000 ….

1.25 x 2-69

What about 0x0C20 0000 = 0000 1100 0010 0000 …

Sign = 0, so positive  
Exponent = -103, see first example  
Fraction 1. 010 0000

1.25 x 2-103

Convert 63.25 to IEEE single precision format

Sign is positive, so first bit is 0, 6310 = 0011 1111, 0.25 is 0.012

This becomes 0011 1111.0100 0000 …, next we normalize

Converts to 1.1111 101 x 25

Fraction is 127+5 = 132 = 1000 0100 (128+4), the final result is

0100 0010 0111 1101 0000 0000 … or 0x427D 0000

Convert 32.75 to IEEE single precision format

S=0, 32 = 0010 00002 and 0.75 is 0.112 => 0010 0000 . 1100, normalize yields

1.000001100 x 25

0 100 0010 0000 0011 0000 … 0x4203 0000