

CS 330 Homework 3-2

1. Show how the following scientific notation values would be represented in IEEE 754 single precision. Mantissas are given in binary, and exponents are given in decimal. Give your answers in hex.
 - (a) 1.1 E 1
 - (b) -1.0100 1100 0010 E 15
 - (c) 1.0100 1100 0010 E -15
 - (d) 1.1111 0000 1 E 126
 - (e) -1.1111 0000 1 E -126
 - (f) 0.0 E 0
2. Convert the following fractional decimal values to fractional binary values. Give your answers in normalized scientific notation. Give mantissas in binary correct to 8 significant bits, and exponents in decimal.
 - (a) 0.25
 - (b) 8.125
 - (c) 0.65625
 - (d) 0.2
 - (e) 1.01
 - (f) 15.15
3. Convert the following IEEE 754 single precision bit patterns to decimal. Give your answers in normalized scientific notation with 5 significant digits.
 - (a) 0x 3FC0 0000
 - (b) 0x BFC0 0000
 - (c) 0x COE0 0000
 - (d) 0x 7010 2000
 - (e) 0x 7F80 0000
 - (f) 0x 0000 0000
4. Convert the following fractional decimal values to IEEE 754 single precision, with 8 significant bits. Give your answers in hex.
 - (a) 48.0
 - (b) -0.03125
 - (c) 11.11
 - (d) 1000000.0
 - (e) -2.0
 - (f) -0.5