

CS520—Spring 2013—Homework 3
Wednesday February 13

Question 1

Convert the following IEEE single-precision floating-point value (shown in hex) to a 32-bit 2's complement integer.

47EFFFFFF

Show your answer in hexadecimal and show all the hex digits, even if they are zero.

Question 2

Convert the following 32-bit 2's complement integer value (shown in hex) to IEEE floating point.

00777777

Show your answer in hexadecimal and show all the hex digits, even if they are zero.

Question 3

What is the result of adding the following two 32-bit hexadecimal values together as IEEE single-precision floating-point values?

42080002 40000008

That is, interpret the two 32-bit values as IEEE single-precision floating point, add them together as a machine implementing the IEEE standard would, and produce the result. Show your answer in hexadecimal and show all the hex digits, even if they are zero.

Question 4

Convert the following IEEE single-precision floating-point value (shown in hex) to an IEEE double-precision floating-point value.

47EFFFFFF

Show your answer in hexadecimal and show all the hex digits, even if they are zero.

Question 5

Convert the following IEEE double-precision floating-point value (shown in hex) to an IEEE single-precision floating-point value.

47EFFFFFFFFFFFFFFF

Show your answer in hexadecimal and show all the hex digits, even if they are zero.