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CS 146

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Homework 2

*I pledge my honor that I have abided by the Stevens Honor System.*

1.

Infinity = 0 11111 0000000000

-2 = 1 10000 0000000000

NaN = 0 11111 1010101010

0 = 0 00000 0000000000

3.875 = 0 10000 1111000000

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0 10001 1001001000 = 6.28125

0 01111 0110101000 = 1.4140625

1 11111 0001110011 = NaN

0 11001 1111011110 = 2014

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The integer value 10,000 is equal to 0010 0111 0001 0000 in binary, which cannot fit in a 16 bit floating point value; the exponent doesn’t let us make a value that large.

2101 is 1000 0011 0101 in binary, which, similarly, doesn’t fit into a 16 bit floating point value. A 16 bit floating point only gives us 10 digits to work with, or 11 if you count the leading 1. This has 12 digits, so it doesn’t fit.

125.0625 is 0111 1101.0001 in binary, which has 12 places, so it won’t fit into a 16 bit floating point value, just like 2101.

2.

* In Java, ‘\n’ gives a line break.
* (94)10 = 0o136, or (136)8
* (94)10 = (5E)16, so the ^ is equivalent to ‘\u005e’