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Introduction to Computer Science
Note on Floating Point Represenation

The textbook's interpretation of the mantissa in floating-point representations is not the same as the IEEE-standard and hence somewhat outdated: The book says that the mantissa 1010 means 0.1010 and that the first bit is always 1 in normalized numbers. IEEE-standard says that 1010 means 1.1010, meaning that the fixed normalization bit is a "hidden bit" or "implicit bit" before the radix point. In calculating the value represented by the mantissa, an extra 1 is added. This way the first bit in the mantissa may be 0. Notes about the IEEE standard (which is included in the current standard) can be found at http://steve.hollasch.net/cgindex/coding/ieeefloat.html.

For problems in this course, we will use the format described in the textbook, using the same number of bits, but the mantissa will have this IEEE-standard form, with the implicit bit.