

## APPENDIX D

# Standard Library Functions

This appendix describes all library functions supported by C89 and C99.\* When using this appendix, please keep the following points in mind:

- In the interest of brevity and clarity, I've omitted many details. Some functions (notably `printf` and `scanf` and their variants) are covered in depth elsewhere in the book, so their descriptions here are minimal. For more information about a function (including examples of how it's used), see the section(s) listed in *italic* at the lower right corner of the function's description.
- As in other parts of the book, italics are used to indicate C99 differences. The names and prototypes of functions that were added in C99 are shown in italics. Changes to C89 prototypes (the addition of the word `restrict` to the declaration of certain parameters) are also italicized.
- Function-like macros are included in this appendix (with the exception of the type-generic macros in `<tgmath.h>`). Each prototype for a macro is followed by the word *macro*.
- In C99, some `<math.h>` functions have three versions (one each for `float`, `double`, and `long double`). All three are grouped into a single entry, under the name of the `double` version. For example, there's only one entry (under `acos`) for the `acos`, `acosf`, and `acosl` functions. The name of each additional version (`acosf` and `acosl`, in this example) appears to the left of its prototype. The `<complex.h>` functions, which also come in three versions, are treated in a similar fashion.
- Most of the `<wchar.h>` functions are wide-character versions of functions found in other headers. Unless there's a significant difference in behavior, the

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\*This material is adapted from international standard ISO/IEC 9899:1999.