The last four functions in `<fenv.h>` deal with the entire floating-point environment, not just the status flags or control modes. Each function returns zero if it succeeds at the operation it was asked to perform. Otherwise, it returns a nonzero value.

*fegetenv* The `fegetenv` function attempts to retrieve the current floating-point environment from the processor and store it in the object pointed to by `envp`.

*feholdexcept* The `feholdexcept` function (1) stores the current floating-point environment in the object pointed to by `envp`, (2) clears the floating-point status flags, and (3) attempts to install a non-stop mode—if available—for all floating-point exceptions (so that future exceptions won't cause a trap or stop).

*fesetenv* The `fesetenv` function attempts to establish the floating-point environment represented by `envp`, which either points to a floating-point environment stored by a previous call of `fegetenv` or `feholdexcept`, or is equal to a floating-point environment macro such as `FE_DFL_ENV`. Unlike the `feupdateenv` function, `fesetenv` doesn't raise any exceptions. If a call of `fegetenv` is used to save the current floating-point environment, then a later call of `fesetenv` can restore the environment to its previous state.

*feupdateenv* The `feupdateenv` function attempts to (1) save the currently raised floating-point exceptions, (2) install the floating-point environment pointed to by `envp`, and (3) raise the saved exceptions. `envp` either points to a floating-point environment stored by a previous call of `fegetenv` or `feholdexcept`, or is equal to a floating-point environment macro such as `FE_DFL_ENV`.

# Q & A

**Q: If the `<inttypes.h>` header includes the `<stdint.h>` header, why do we need the `<stdint.h>` header at all? [p. 709]**

A: The primary reason that `<stdint.h>` exists as a separate header is so that programs in a freestanding implementation may include it. (C99 requires conforming implementations—both hosted and freestanding—to provide the `<stdint.h>` header, but `<inttypes.h>` is required only for hosted implementations.) Even in a hosted environment, it may be advantageous to include `<stdint.h>` rather than `<inttypes.h>` to avoid defining all the macros that belong to the latter.

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***Q: There are three versions of the `modf` function in `<math.h>`, so why isn't there a type-generic macro named `modf`? [p. 725]**

A: Let's take a look at the prototypes for the three versions of `modf`:

```
double modf(double value, double *iptr);
float modff(float value, float *iptr);
long double modfl(long double value, long double *iptr);
```

`modf` is unusual in that it has a pointer parameter, and the type of the pointer isn't the same among the three versions of the function. (`frexp` and `remquo` have a