Printing Expressions

`printf` isn't limited to displaying numbers stored in variables; it can display the value of *any* numeric expression. Taking advantage of this property can simplify a program and reduce the number of variables. For instance, the statements

```
volume = height * length * width;
printf("%d\n", volume);
```

could be replaced by

```
printf("%d\n", height * length * width);
```

`printf`'s ability to print expressions illustrates one of C's general principles: *Wherever a value is needed, any expression of the same type will do.*

2.5 Reading Input

Because the `dweight.c` program calculates the dimensional weight of just one box, it isn't especially useful. To improve the program, we'll need to allow the user to enter the dimensions.

To obtain input, we'll use the `scanf` function, the C library's counterpart to `printf`. The `f` in `scanf`, like the `f` in `printf`, stands for "formatted"; both `scanf` and `printf` require the use of a ***format string*** to specify the appearance of the input or output data. `scanf` needs to know what form the input data will take, just as `printf` needs to know how to display output data.

To read an `int` value, we'd use `scanf` as follows:

```
scanf("%d", &i);    /* reads an integer; stores into i */
```

The `"%d"` string tells `scanf` to read input that represents an integer; `i` is an `int` variable into which we want `scanf` to store the input. The `&` symbol is hard to explain at this point; for now, I'll just note that it is usually (but not always) required when using `scanf`.

& operator ➤ 11.2

Reading a `float` value requires a slightly different call of `scanf`:

```
scanf("%f", &x);    /* reads a float value; stores into x */
```

`%f` works only with variables of type `float`, so I'm assuming that `x` is a `float` variable. The `"%f"` string tells `scanf` to look for an input value in `float` format (the number may contain a decimal point, but doesn't have to).

PROGRAM

Computing the Dimensional Weight of a Box (Revisited)

Here's an improved version of the dimensional weight program in which the user enters the dimensions. Note that each call of `scanf` is immediately preceded by a