

we'd call `printf` as follows:

```
printf("Profit: $%.2f\n", profit);
```

There's no limit to the number of variables that can be printed by a single call of `printf`. To display the values of both the `height` and `length` variables, we could use the following call of `printf`:

```
printf("Height: %d Length: %d\n", height, length);
```

## PROGRAM Computing the Dimensional Weight of a Box

Shipping companies don't especially like boxes that are large but very light, since they take up valuable space in a truck or airplane. In fact, companies often charge extra for such a box, basing the fee on its volume instead of its weight. In the United States, the usual method is to divide the volume by 166 (the allowable number of cubic inches per pound). If this number—the box's "dimensional" or "volumetric" weight—exceeds its actual weight, the shipping fee is based on the dimensional weight. (The 166 divisor is for international shipments; the dimensional weight of a domestic shipment is typically calculated using 194 instead.)

Let's say that you've been hired by a shipping company to write a program that computes the dimensional weight of a box. Since you're new to C, you decide to start off by writing a program that calculates the dimensional weight of a particular box that's 12" × 10" × 8". Division is represented by `/` in C, so the obvious way to compute the dimensional weight would be

```
weight = volume / 166;
```

where `weight` and `volume` are integer variables representing the box's weight and volume. Unfortunately, this formula isn't quite what we need. In C, when one integer is divided by another, the answer is "truncated": all digits after the decimal point are lost. The volume of a 12" × 10" × 8" box will be 960 cubic inches. Dividing by 166 gives the answer 5 instead of 5.783, so we have in effect rounded *down* to the next lowest pound; the shipping company expects us to round *up*. One solution is to add 165 to the volume before dividing by 166:

```
weight = (volume + 165) / 166;
```

A volume of 166 would give a weight of 331/166, or 1, while a volume of 167 would yield 332/166, or 2. Calculating the weight in this fashion gives us the following program.

```
dweight.c /* Computes the dimensional weight of a 12" x 10" x 8" box */

#include <stdio.h>

int main(void)
{
```