Another Example

Much of what you learn about functions and C++ structures carries over to C++ classes, so it's worth looking at a second example. This time we deal with space instead of time. In particular, the example defines two structures representing two different ways of describing positions and then develops functions to convert one form to the other and show the result. This example is a bit more mathematical than the last, but you don't have to follow the mathematics to follow the C++.

Suppose you want to describe the position of a point on the screen or a location on a map relative to some origin. One way is to state the horizontal offset and the vertical offset of the point from the origin. Traditionally, mathematicians use the symbol x to represent the horizontal offset and y to represent the vertical offset. (See Figure 7.6.) Together, x and y constitute *rectangular coordinates*. You can define a structure consisting of two coordinates to represent a position:

![Figure 7.6. Rectangular coordinates.](image-url)