First, let's consider the dataset that this histogram represents. Notice that eight colleges had costs between $9 thousand and $11 thousand.

So, the vertical axis on this histogram is the number of times a score occurs in the data.

The tallest bar says that nine colleges had costs between $35 thousand and $37 thousand.

In general, in histograms, the frequencies (on the vertical axis) aren't very satisfactory numbers. To interpret them, we have to know how many data points there are overall in the set. So the fact that 8 colleges have tuition between $9 thousand and $11 thousand isn't as useful as knowing that it is 8 out of how many. In this case the text tells us how many were in the overall dataset. But you've seen lots of histograms in newspapers and magazines that don't have a lot of explanation. So you'd have to add all the heights of the bars to see. 8+2+1+4+6+ etc. This is very tedious!

If we want to compare two data sets, we might want to "standardize" these. For instance, if we wanted to make a collection of these histograms comparing college costs for each state, we would want percentages on each vertical axis rather than actual frequencies. So...
we would convert each number of colleges to "percentage of colleges" or "fraction of colleges." In these terms, the tallest bar represents $9/57 = .16 = 16\%$ of the colleges. We could make a histogram with these fractions or percentages on the vertical axis. Try it.

The result will have the same shape as the original histogram, but the labels on the vertical axis will be percentages, not counts.

You think about it -- what is the sum of all the percentages that are the heights of the bars?
Answer: If we got them all, then 100%

**Area is 1.**

So, in the original histogram for college tuition, the total area represents 57 data points. In the histogram of percentages, the total area represents 100\% of the data points. In decimal form, the total area is 1.00. This is where the area of 1 comes from.

Below is a histogram of the same data, but with percentages rather than frequencies on the vertical axis.