NEW SKILLS: WORKING WITH SLOPE

You may have heard the words pitch, slant, or steepness. What do these terms mean? They are words to describe **slope**. Slope is a ratio that compares the change in a vertical distance to the change in a horizontal distance. It is a ratio between these two numbers.

slope: a ratio of rise to run which indicates how steeply something is slanted

Slope can be expressed as follows.

$$\text{slope} = \frac{\Delta \text{ vertical distance}}{\Delta \text{ horizontal distance}}$$

The variable *m* is used to represent slope. The change in vertical distance is also called the rise, and the change in horizontal distance is also called the run. Slope can therefore be expressed as follows.

$$m = \frac{\text{rise}}{\text{run}}$$

The symbol Δ is the Greek letter delta, and it means "change" or "difference."

For more details, see page 12 of *MathWorks 11*.

Example 3

Calculate the slope of a line that has a rise of 12 cm for a run of 8 cm.

SOLUTION

Use the formula for slope.

$$m = \frac{\text{rise}}{\text{run}}$$

$$m = \frac{12}{8} \qquad \text{Substitute in the known values.}$$

$$m = \frac{12 \div 4}{8 \div 4} \qquad \text{Divide by a common factor.}$$

$$m = \frac{3}{2}$$

Slope does not have units because it is a ratio, not a measurement.

The slope is $\frac{3}{2}$.