<u>279</u>. **Slope of a roof.** An easy way to determine the slope of a roof is to set one end of a 12 inch level on the roof surface and hold it level. Then take a tape measure or ruler and measure from the other end of the level down to the roof surface. This will give you the slope of the roof. Builders, sometimes, refer to this as pitch and state it as an "x 12 pitch" meaning $\frac{x}{12}$, where x is the measurement from the roof to the level—the rise. It is also sometimes stated as an "x-in-12 pitch".

  ⓐ What is the slope of the roof in this picture?
  ⓑ What is the pitch in construction terms?
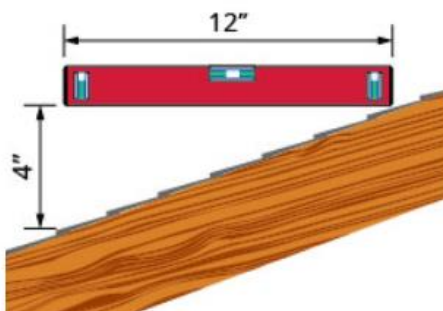
280. The slope of the roof shown here is measured with a 12" level and a ruler. What is the slope of this roof?
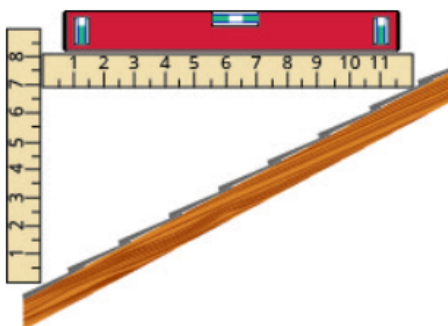
<u>281</u>. **Road grade.** A local road has a grade of 6%. The grade of a road is its slope expressed as a percent. Find the slope of the road as a fraction and then simplify. What rise and run would reflect this slope or grade?

282. **Highway grade.** A local road rises 2 feet for every 50 feet of highway.
  ⓐ What is the slope of the highway?
  ⓑ The grade of a highway is its slope expressed as a percent. What is the grade of this highway?

283. **Wheelchair ramp.** The rules for wheelchair ramps require a maximum 1-inch rise for a 12-inch run.
  ⓐ How long must the ramp be to accommodate a 24-inch rise to the door?
  ⓑ Create a model of this ramp.

284. **Wheelchair ramp.** A 1-inch rise for a 16-inch run makes it easier for the wheelchair rider to ascend a ramp.
  ⓐ How long must a ramp be to easily accommodate a 24-inch rise to the door?
  ⓑ Create a model of this ramp.

Writing Exercises

285. What does the sign of the slope tell you about a line?

286. How does the graph of a line with slope $m = \frac{1}{2}$ differ from the graph of a line with slope $m = 2$?

287. Why is the slope of a vertical line "undefined"?