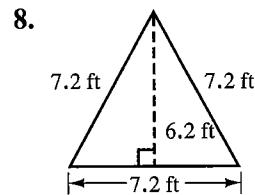
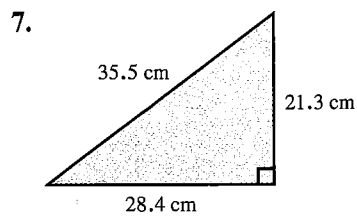
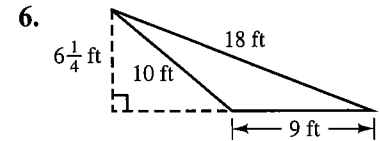
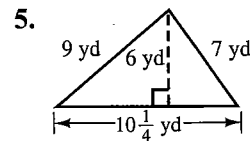
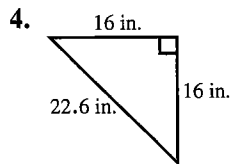
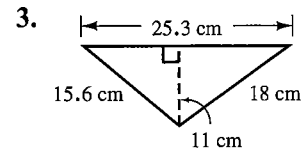
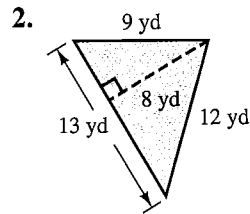
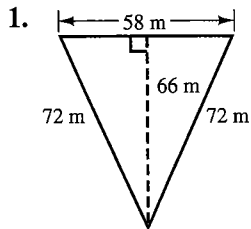


## 7.4 Exercises

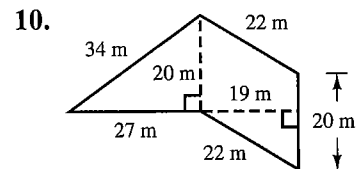
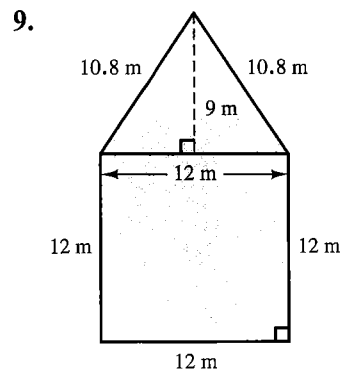
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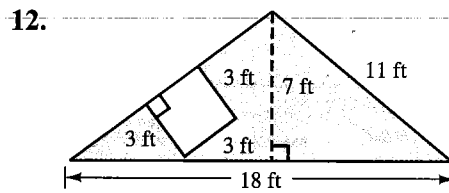
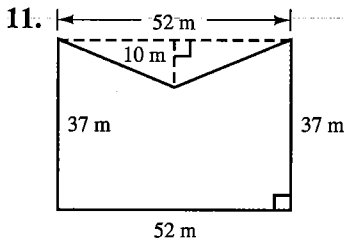
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Find the perimeter and area of each triangle. See Examples 1 and 2.

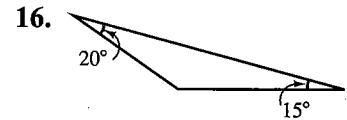
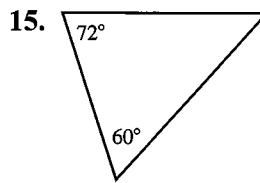
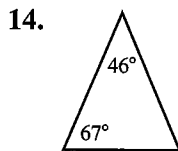
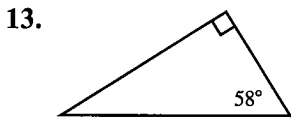


Find the shaded area in each figure. See Example 3.





Find the number of degrees in the third angle of each triangle. See Example 5.

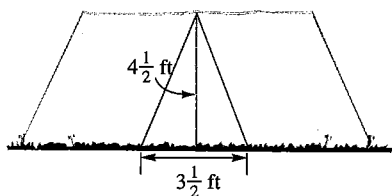


17. Can a triangle have two right angles? Explain your answer.

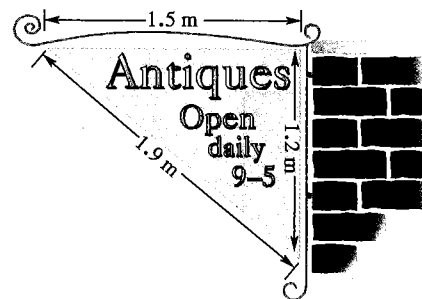
18. In your own words, explain where the  $\frac{1}{2}$  comes from in the formula for area of a triangle. Draw a sketch to illustrate your explanation.

Solve each application problem. See Example 4.

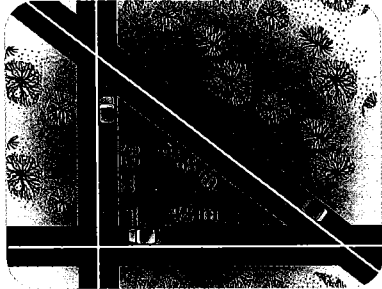
19. A triangular tent flap measures  $3\frac{1}{2}$  ft along the base and has a height of  $4\frac{1}{2}$  ft. How much canvas is needed to make the flap?



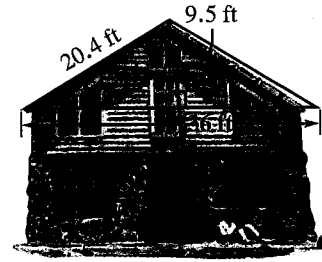
20. A wooden sign in the shape of a right triangle has perpendicular sides measuring 1.5 m and 1.2 m. How much surface area does the sign have?



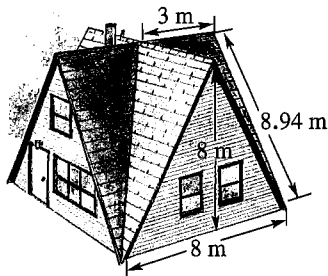
21. A triangular space between three streets has the measurements shown below.
- How much new curbing will be needed to go around the space?
  - How much sod will be needed to cover the space?



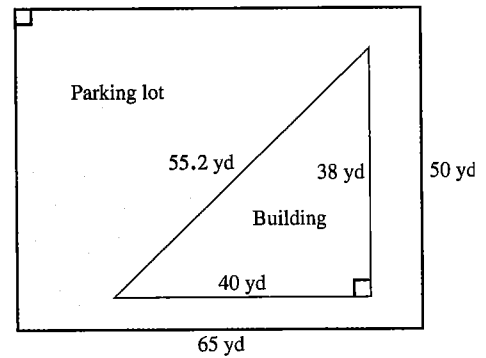
22. Each gable end of a new house has a span of 36 ft and a rise of 9.5 ft. What is the total area of both gable ends of the house?



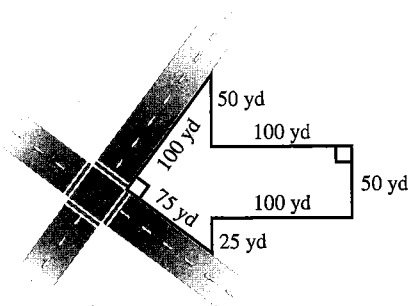
23. All sides of the house below are congruent and all roof sections are congruent.
- Find the area of one side of the house.
  - Find the area of one roof section.



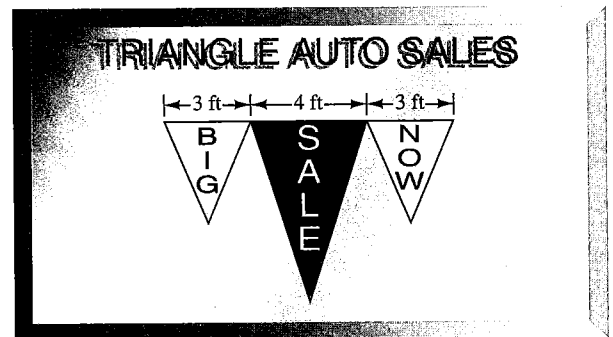
24. The sketch shows the plan for an office building. The shaded area will be a parking lot. What is the cost of building the parking lot if the contractor charges \$28.00 per square yard for materials and labor?



25. A city lot with an unusual shape is shown below.
- How much frontage (distance along streets) does the lot have?
  - What is the area of the lot?



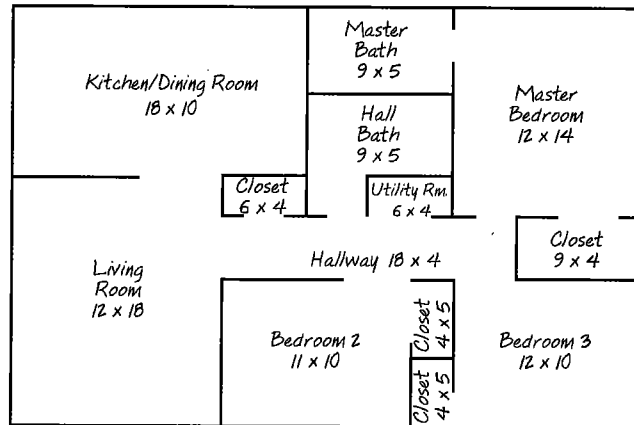
26. A car dealership wants three nylon pennants to hang in its front window. The height of the two smaller pennants is 3.5 ft, and the larger pennant has a height of 6.5 ft. How much nylon fabric is needed for all the pennants?



# Real-Data Applications

## Interior Design

Suppose that you have just bought a small waterfront house and you plan to remodel the interior by installing tile and carpet on the floors. A sketch of the floor plan is shown below. All measurements are in feet and represent the measurements rounded up to the nearest foot.



- How many square feet of floor space are in each of the following rooms?
  - Kitchen/dining room
  - Living room
  - Master bath, and hall bath (including entry) combined
  - Hallway, hall closet, and utility room combined
- Suppose you plan to install floor tiles in the kitchen/dining room, living room, both baths, hall bath entry, hallway, hall closet, and utility room. The flooring company salesperson recommends that you increase your square footage requirement by 5% to compensate for waste. How many square feet of tile are needed?
- Tiles are sold in boxes of twelve 1-foot-square tiles, and partial boxes are not sold. The tile that you selected costs \$5.75 per square foot, installed, based on the total number of tiles purchased. The sales tax rate is 8.25%.
  - How many boxes of tile must you purchase?
  - How much will it cost to install the tile, including sales tax?
- How many square feet of floor is in all the bedrooms and bedroom closets, combined?
- Suppose you plan to carpet the bedrooms and closets. The carpet costs \$24.95 per square yard, installed, and the sales tax rate is 8.25%. The carpet is sold in rolls that are 12 ft wide, so a 3 ft length equals 4 yd<sup>2</sup>. Why?

The salesperson recommends that you purchase a 45 ft length of the 12 ft. wide carpet.

- Write how the salesperson may have computed the 45 ft length. The 45 ft length is how many square yards of carpet?
- A common industry formula is to compute  $(\text{length} \cdot \text{width}) \div 8$ , rounded up to the next square yard, to estimate the number of square yards. How accurate is that formula for this job?
- How much will it cost to install the carpet, including sales tax?