

**24. Geometry** An isosceles triangle is a triangle in which two sides are equal in length. The angle between the two equal sides is called the vertex angle, while the other two angles are called the base angles. If the vertex angle is  $40^\circ$ , what is the measure of the base angles?

Problems 25 through 30 refer to right triangle  $ABC$  with  $C = 90^\circ$ .

- 25. If  $a = 4$  and  $b = 3$ , find  $c$ .
- 26. If  $a = 6$  and  $b = 8$ , find  $c$ .
- 27. If  $a = 8$  and  $c = 17$ , find  $b$ .
- 28. If  $a = 2$  and  $c = 6$ , find  $b$ .
- 29. If  $b = 12$  and  $c = 13$ , find  $a$ .
- 30. If  $b = 10$  and  $c = 26$ , find  $a$ .

Solve for  $x$  in each of the following right triangles:

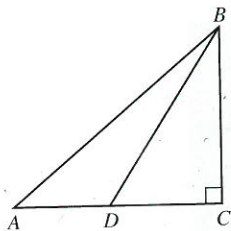
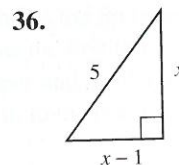
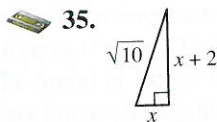
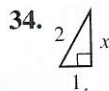
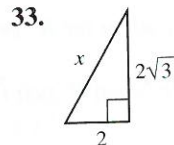
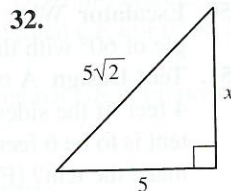
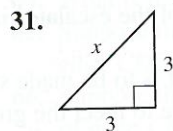


Figure 21

- Problems 37 and 38 refer to Figure 21.
- 37. Find  $AB$  if  $BC = 4$ ,  $BD = 5$ , and  $AD = 2$ .
  - 38. Find  $BD$  if  $BC = 5$ ,  $AB = 13$ , and  $AD = 4$ .

Problems 39 and 40 refer to Figure 22, which shows a circle with center at  $C$  and a radius of  $r$ , and right triangle  $ADC$ .

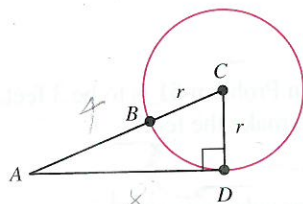


Figure 22

- 39. Find  $r$  if  $AB = 4$  and  $AD = 8$ .
- 40. Find  $r$  if  $AB = 8$  and  $AD = 12$ .
- 41. **Pythagorean Theorem** The roof of a house is to extend up 13.5 feet above the ceiling, which is 36 feet across (Figure 23). Find the length of one side of the roof.

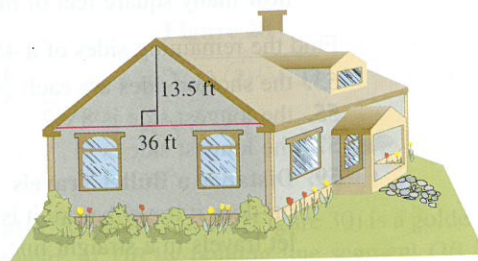


Figure 23

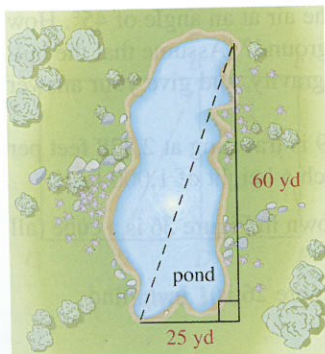


Figure 24

- 42. **Surveying** A surveyor is attempting to find the distance across a pond. From a point on one side of the pond he walks 25 yards to the end of the pond and then makes a  $90^\circ$  turn and walks another 60 yards before coming to a point directly across the pond from the point at which he started. What is the distance across the pond? (See Figure 24.)