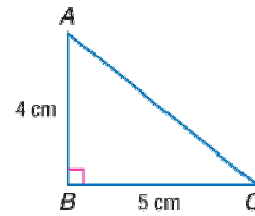


## Lesson 10-2

## Example 1

**ARCHITECTURE** An architect draws a right triangle,  $\triangle ABC$ , on a blueprint.  $AB = 4$  cm, and  $BC = 5$  cm. Find  $AC$  to the nearest tenth.



## Solution

Let  $x = AC$ .

$$4^2 + 5^2 = x^2$$

$$16 + 25 = x^2$$

$$41 = x^2$$

$$\sqrt{41} = x$$

$$6.403124237... = x$$

Use a calculator to find  $\sqrt{41}$ .

So,  $AC = 6.4$  cm to the nearest tenth.

## Example 2

Find  $x$  to the nearest hundredth of an inch.

## Solution

$$x^2 + 7^2 = 13^2$$

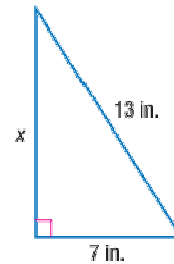
$$x^2 + 49 = 169$$

$$x^2 = 120$$

$$x = \sqrt{120}$$

$$x = 10.95445115...$$

So,  $x = 10.95$  in.



**Example 3**

Are triangles with the following lengths right triangles?

a. 4 in., 4 in., 6 in.

b. 3 cm,  $3\sqrt{3}$  cm, 6 cm

**Solution**

a.  $4^2 + 4^2 \stackrel{?}{=} 6^2$

$$16 + 16 \stackrel{?}{=} 36$$

$$32 \neq 36$$

b.  $3^2 + (3\sqrt{3})^2 \stackrel{?}{=} 6^2$

$$9 + (9 \cdot 3) \stackrel{?}{=} 36$$

$$9 + 27 \stackrel{?}{=} 36$$

$$36 = 36$$

Therefore, 3 cm,  $3\sqrt{3}$ cm, and 6 cm form a right triangle, but 4 in., 4 in., and 6 in. do not.