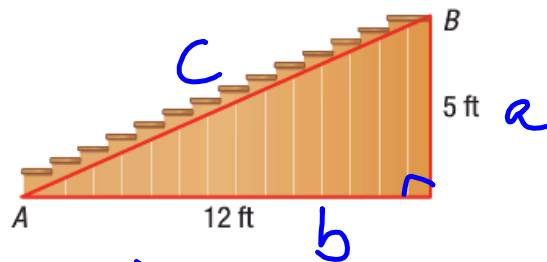


### L5-6 Use the Pythagorean Theorem

**Got It?** Do this problem to find out.

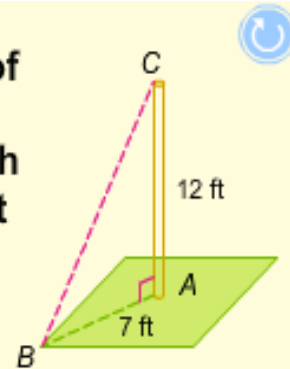
- a. Mr. Parsons wants to build a new banister for the staircase shown. If the rise of the stairs of a building is 5 feet and the run is 12 feet, what will be the length of the new banister?



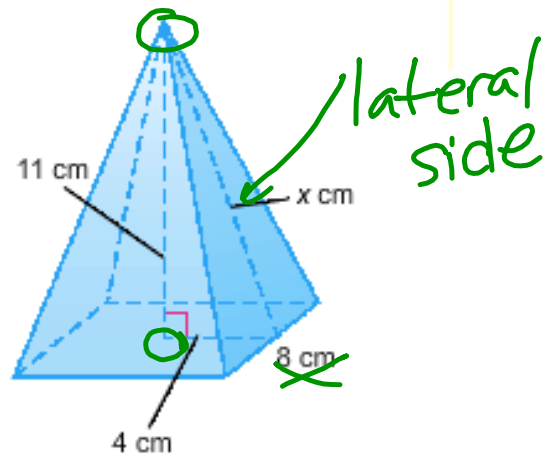
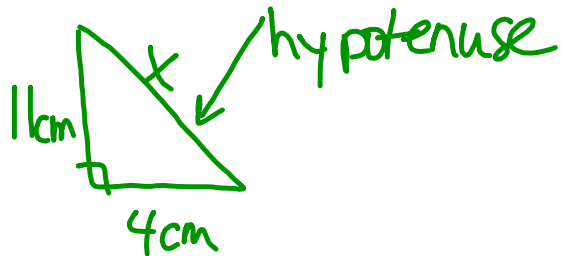
$$\begin{aligned}
 a^2 + b^2 &= c^2 \\
 5^2 + 12^2 &= c^2 \\
 25 + 144 &= c^2 \\
 \sqrt{169} &= \sqrt{c^2} \\
 13 \text{ ft} &= c
 \end{aligned}$$

The banister should be 13 ft. long.

3. A 12-foot flagpole is placed in the center of a square area. To stabilize the pole, a wire will stretch from the top of the pole to each corner of the square. The flagpole is 7 feet from each corner of the square. What is the length of each wire? Round to the nearest tenth.



The *slant height* of a pyramid is the height of each lateral face. What is the slant height of the pyramid shown? Round to the nearest tenth.



$$a^2 + b^2 = c^2$$

$$4^2 + 11^2 = c^2$$

$$16 + 121 = c^2$$

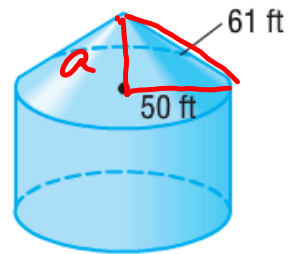
$$\sqrt{137} = \sqrt{c^2}$$

$$11.7 \approx c$$

$$c \approx 11.7 \text{ cm}$$

**Got It?** Do this problem to find out.

- b. The top part of a circus tent is in the shape of a cone. The tent has a radius of 50 feet. The distance from the top of the tent to the edge is 61 feet. How tall is the top part of the tent? Round to the nearest whole number.



$$\begin{aligned}
 a^2 + b^2 &= c^2 \\
 a^2 + 50^2 &= 61^2 \\
 a^2 + 2500 &= 3721 \\
 \underline{-2500} \quad \underline{-2500} & \\
 \sqrt{a^2} &= \sqrt{1221}
 \end{aligned}$$

$$a \approx 34.9 \text{ ft.}$$

$\therefore$  The top of the tent is  $\approx 34.9$  ft tall.

Rise & run are  $\perp$  to one another  $\therefore$  the triangle is 