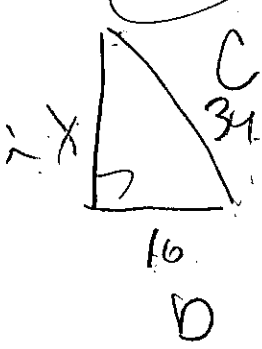


Name: Key

Pythagorean Theorem
Word Problems
Homework

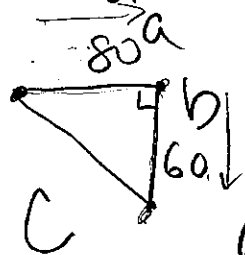
1) The length of the hypotenuse of a right triangle is 34 inches and the length of one of its legs is 16 inches. What is the length, in inches, of the other leg of this right triangle?

- A) 25
- B) 30
- C) 16
- D) 18



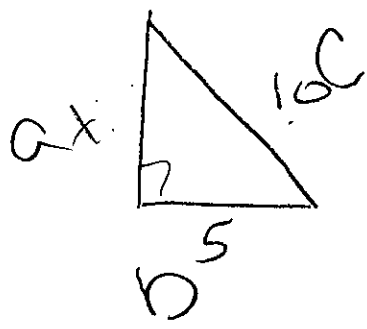
$$\begin{aligned}
 a^2 + b^2 &= c^2 \\
 a^2 + 16^2 &= 34^2 \\
 a^2 + 256 &= 1156 \\
 -256 & \quad -256 \\
 \hline
 a^2 &= 900 \\
 a &= 30
 \end{aligned}$$

2) A car is driven 80 miles east and then 60 miles south. How far is the car from the starting point?



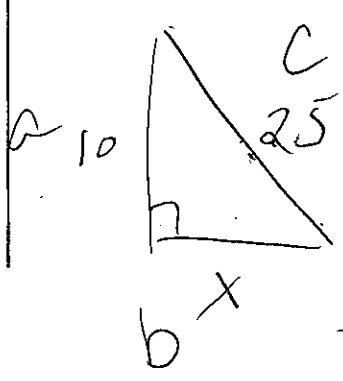
$$\begin{aligned}
 a^2 + b^2 &= c^2 \\
 80^2 + 60^2 &= c^2 \\
 6400 + 3600 &= c^2 \\
 \sqrt{10,000} &= c \\
 c &= 100 \\
 \text{100 mi}
 \end{aligned}$$

3) A ladder 10 feet long is leaning against a building. How high on the building will the ladder reach when the bottom of the ladder is 5 feet from the building? [Round to the nearest tenth.]



$$\begin{aligned}
 a^2 + b^2 &= c^2 \\
 a^2 + 5^2 &= 10^2 \\
 a^2 + 25 &= 100 \\
 -25 & \quad -25 \\
 \hline
 a^2 &= 75 \\
 a &= 8.7 \\
 \text{8.7 ft}
 \end{aligned}$$

4) A 25-foot cable holds a telephone pole in place. The cable is attached to the telephone pole 10 feet above the ground. What is the distance along the ground from the base of the pole to the cable? Round to the nearest tenth.



$$\begin{aligned}
 a^2 + b^2 &= c^2 \\
 10^2 + b^2 &= 25^2 \\
 100 + b^2 &= 625 \\
 -100 & \quad -100 \\
 \hline
 b^2 &= 525 \\
 b &= 22.9 \\
 \text{22.9 ft}
 \end{aligned}$$