

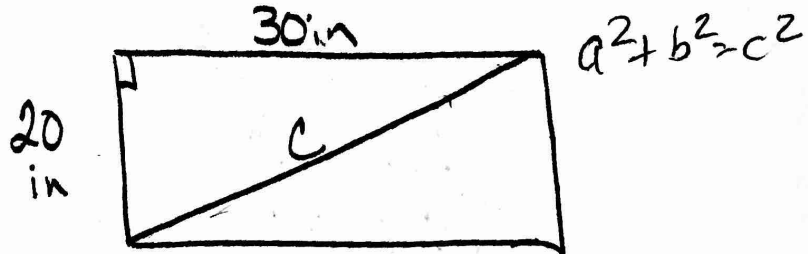
Key

2 - D Applications Homework WS

1. Anna is building a rectangular picture frame. If the sides of the frame are 20 inches by 30 inches, what should be the diagonal measure? Round to the nearest tenth of an inch.

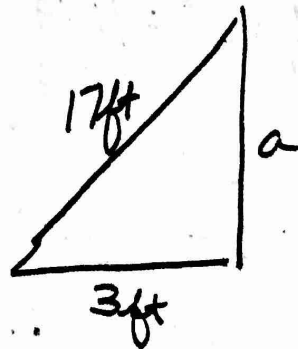
$$\begin{aligned}20^2 + 30^2 &= c^2 \\400 + 900 &= c^2 \\1300 &= c^2 \\ \sqrt{1300} &= c\end{aligned}$$

$$\boxed{36.1 \text{ in}}$$



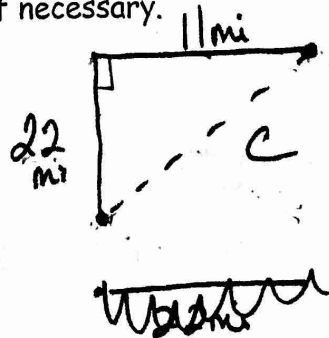
2. A ladder 17 feet long is leaning against a wall. The bottom of the ladder is 3 feet from the base of the wall. How far up the wall is the top of the ladder? Round to the nearest tenth if necessary.

$$\begin{aligned}a^2 + 3^2 &= 17^2 \\a^2 + 9 &= 289 \\ \quad -9 \quad -9 & \\ \hline a^2 &= 280 \\ a &= \sqrt{280} \\ a &= \boxed{16.7 \text{ ft}}\end{aligned}$$



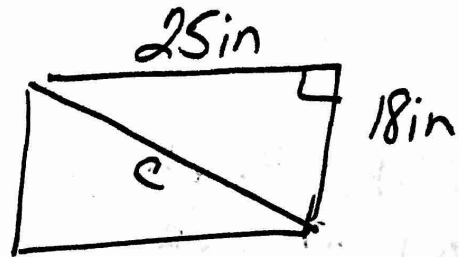
3. Tara drives due north for 22 miles then east for 11 miles. How far is Tara from her starting point? Round to the nearest tenth if necessary.

$$\begin{aligned}11^2 + 22^2 &= c^2 \\121 + 484 &= c^2 \\605 &= c^2 \\ \sqrt{605} &= c \\ \boxed{24.6 \text{ mi}}\end{aligned}$$



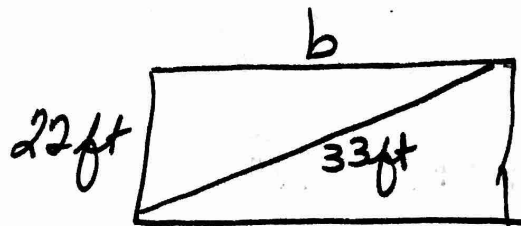
4. Isaac's television is 25 inches wide and 18 inches high. What is the diagonal size of Isaac's television? Round to the nearest tenth if necessary.

$$\begin{aligned}
 25^2 + 18^2 &= c^2 \\
 625 + 324 &= c^2 \\
 949 &= c^2 \\
 \sqrt{949} &= c \\
 \boxed{30.8 \text{ in}}
 \end{aligned}$$



5. Ross has a rectangular garden in his back yard. He measures one side of the garden as 22 feet and the diagonal as 33 feet. What is the length of the other side of his garden? Round to the nearest tenth of a foot.

$$\begin{aligned}
 22^2 + b^2 &= 33^2 \\
 484 + b^2 &= 1089 \\
 -484 & \quad -484 \\
 \hline
 b^2 &= 605 \\
 b &= \sqrt{605} \\
 \boxed{b = 24.6 \text{ ft}}
 \end{aligned}$$



6. The course for a local triathlon has the shape of a right triangle. The legs of the triangle consist of a 4-mile swim and a 10-mile run. The hypotenuse of the triangle is the biking portion of the event. How far is the biking part of the triathlon? Round to the nearest tenth if necessary.

$$\begin{aligned}
 4^2 + 10^2 &= c^2 \\
 16 + 100 &= c^2 \\
 116 &= c^2 \\
 \sqrt{116} &= c \\
 \boxed{c = 10.8 \text{ mi}}
 \end{aligned}$$

