HW: Worksheet

Warm up:

Solve for x.

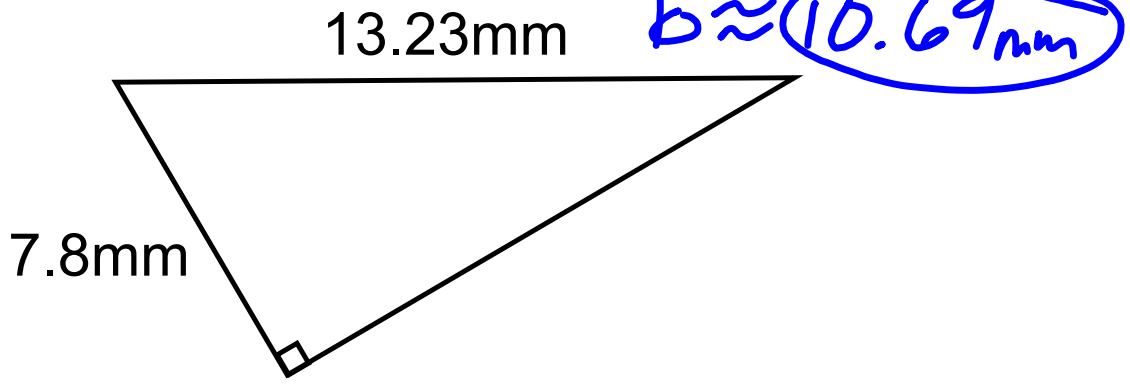
$7.8^2 + b^2 = 13.23^2$

$60.84 + b^2 = 175.0329$

$-60.84 \quad -60.84$

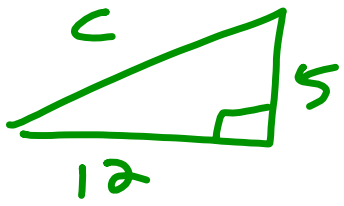
$\sqrt{b^2} = \sqrt{114.1929}$

$b \approx 10.69\text{mm}$



HW Solutions

(9)



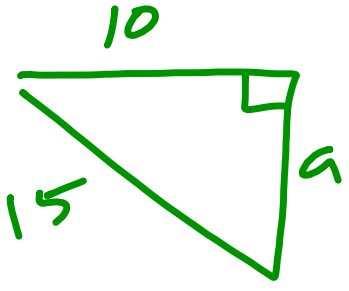
$5^2 + 12^2 = c^2$

$25 + 144$

$\sqrt{169} = \sqrt{c^2}$

$13 = c$

Q0



$a^2 + 10^2 = 15^2$

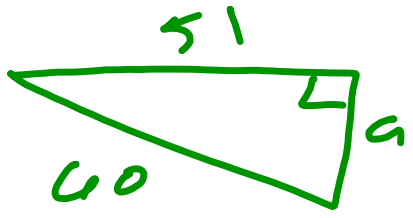
$a^2 + 100 = 225$

$-100 \quad -100$

$\sqrt{a^2} = \sqrt{125}$

$a \approx 11.2$

1



$a^2 + 51^2 = 60^2$

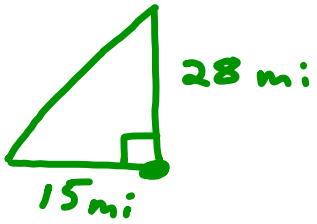
$a^2 + 2601 = 3600$

$-2601 \quad -2601$

$\sqrt{a^2} = \sqrt{999}$

$a \approx 31.6$

Two trains left New York City. The train traveling north went 28 miles. The other train, which was traveling west, went 15 miles. How far apart are the trains?



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

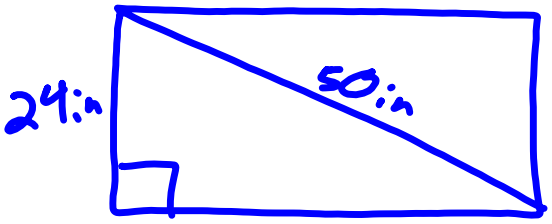
$15^2 + 28^2 = c^2$

$225 + 784$

$\sqrt{1009} = \sqrt{c^2}$

$31.76\text{mi} \approx c$

You want to buy a 50 inch TV. You found one for sale with a listed height of 24 inches. What is the width of the TV?



$a^2 + 24^2 = 50^2$

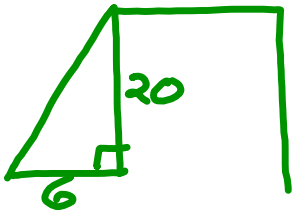
$a^2 + 576 = 2500$

$-576 \quad -576$

$\sqrt{a^2} = \sqrt{1924}$

$a \approx 43.86$ in

Tom wants to clean the gutters on his house. His house is 20 feet tall and he wants to put the base of the ladder 6 feet from the house. What size ladder does he need to buy?



$6^2 + 20^2 = x^2$

$36 + 400$

$\sqrt{436} = \sqrt{x^2}$

$20.881 \approx x$

$y = x + 7$

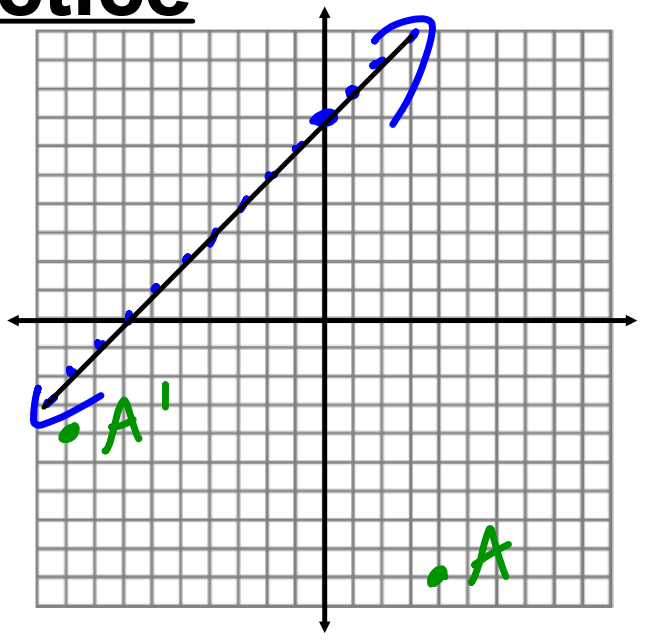
Practice

(4, -9)

270

$(x, y) \rightarrow (y, -x)$

$(4, -9) \rightarrow (-9, -4)$



TRAVEL The Research Triangle in North Carolina is formed by Raleigh, Durham, and Chapel Hill. Is this triangle a right triangle? Explain.

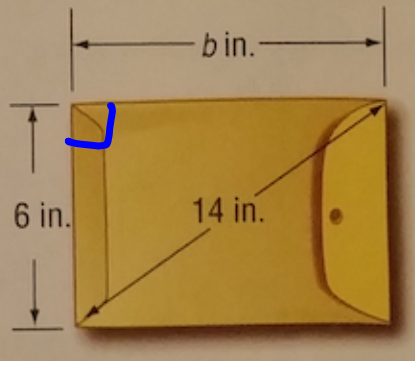
$12^2 + 24^2 \stackrel{?}{=} 29^2$

$144 + 576$

$720 \neq 841$

no

POSTAGE An envelope is classified as a *large* envelope if the length exceeds 11.5 inches. Is the envelope below a large envelope?



$6^2 + b^2 = 14^2$

$36 + b^2 = 196$

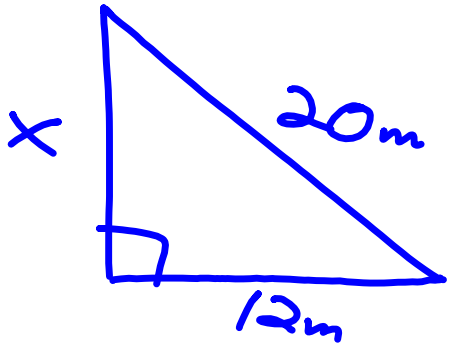
$-36 \quad -36$

$\sqrt{b^2} = \sqrt{160}$

$b \approx 12.65$ in

Yes

A guywire 20m long is attached to the top of a telephone pole. The guywire is just able to reach a point on the ground 12m from the base of the telephone pole. Find the height of the telephone pole.



$x^2 + 12^2 = 20^2$

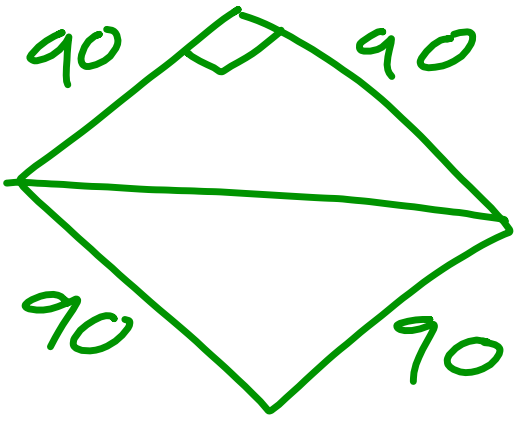
$x^2 + 144 = 400$

$-144 \quad -144$

$\sqrt{x^2} = \sqrt{256}$

$x = 16\text{m}$

A baseball diamond is a square 90ft on a side.
What is the length from first base to third base?



$90^2 + 90^2 = x^2$

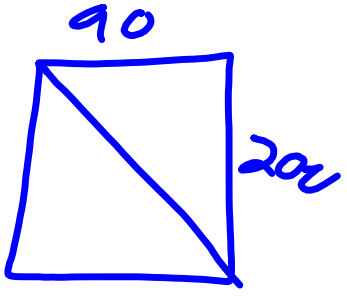
$8100 + 8100$

$\sqrt{16200} = \sqrt{x^2}$

$127.28 \approx x$

127.28 ft

The dimensions of a rectangular doorway are 200cm by 90cm. Can a table top with a diameter of 210cm be carried through the doorway?



$90^2 + 200^2 = x^2$

$8100 + 40000 = x^2$

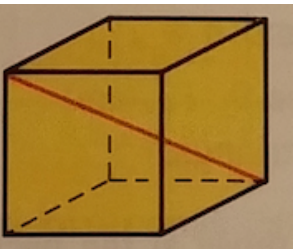
$\sqrt{48100} = \sqrt{x^2}$

$219.32_{cm} \simeq x$

The base of an isosceles triangle is 18cm long. The equal sides are each 24cm long. Find the altitude.

Seth made a small rectangular table for his workroom. The sides of the table are 36" and 18". If the diagonal of the table measures 43", is the table square? A table which is "square" has right angles at the corners.

What is the length of each diagonal of a cube that is 45 cm on each side?



March 18, 2022