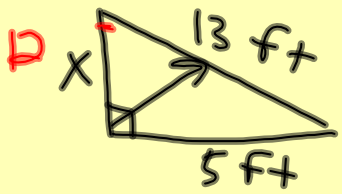
Pythagorean Theorem Word Problems

Suppose you have a ladder that is 13 feet long. So that it is sturdy enough, you must place it exactly 5 feet from the wall of the building. If you need to post a banner on the building 10 feet above the ground, is the ladder long enough?



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

$5^2+b^2=13^2$

$25+b^2=169$

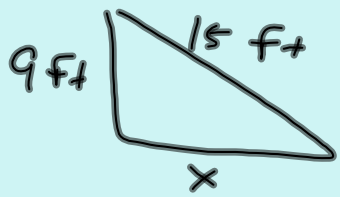
$-25 \quad -25$

$\sqrt{b^2}=\sqrt{144}$

$b=12$ ft

5, 12, 13 Δ

You have a fifteen foot ladder and need to reach exactly nine feet up the wall. How far away from the wall should you place the ladder so you reach the desired location?



3, 4, 5 times 3

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

$x^2+9^2=15^2$

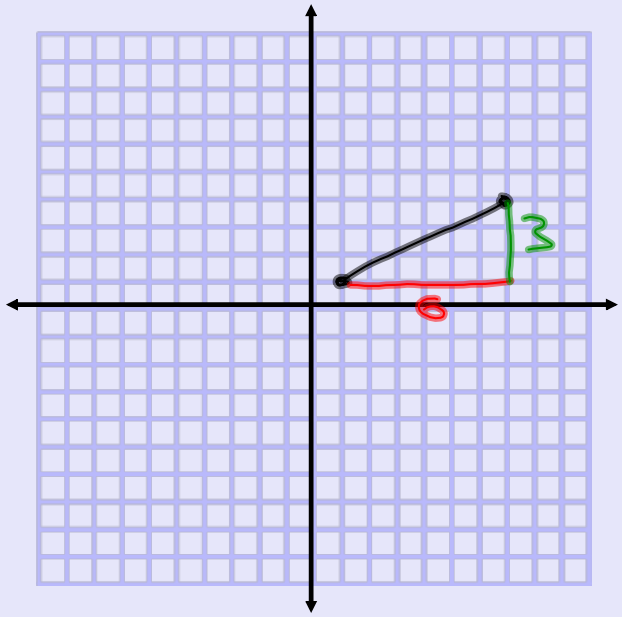
$x^2+81=225$

$-81 \quad -81$

$\sqrt{x^2}=\sqrt{144}$

$x=12$

Find the distance between the points (1, 1) and (7,4).



3

6

$A^2 + b^2 = c^2$

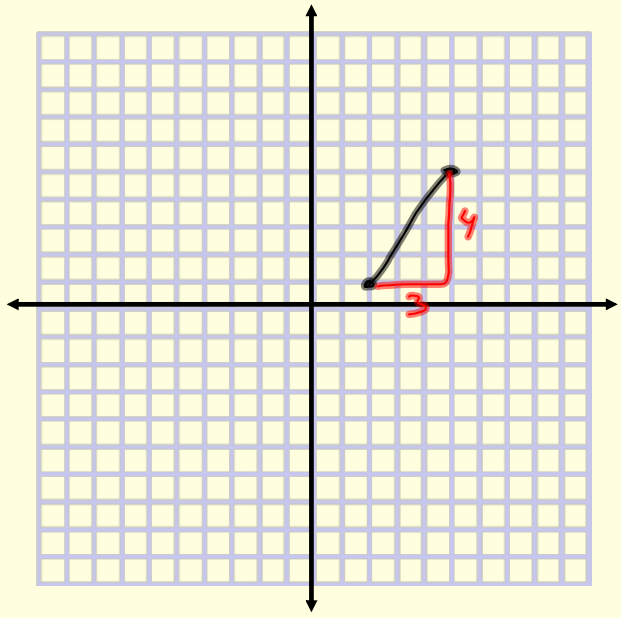
$c^2 + 3^2 = c^2$

$36 + 9 = c^2$

$\sqrt{45} = \sqrt{c^2}$

$\sqrt{45} = c$

Find the distance between point A (2, 1) and B (5, 5).



4

3

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

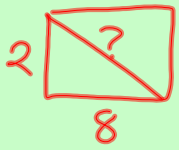
$3^2 + 4^2 = c^2$

$9 + 16 = c^2$

$\sqrt{25} = \sqrt{c^2}$

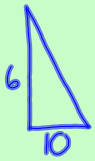
$5 = c$

Given a rectangle with side lengths of 8 cm and 2 cm, find the length of the diagonal.



$a^2+b^2=c^2$
$8^2+2^2=x^2$
$64+4=x^2$
$\sqrt{68}=\sqrt{x^2}$
$\sqrt{68}=x$

A person who is six feet tall casts a shadow that is 10 feet tall. What is the distance from the top of the person's head and the top of the head on his shadow?



$a^2+b^2=c^2$
$6^2+10^2=c^2$
$36+100=c^2$
$\sqrt{136}=\sqrt{c^2}$
$\sqrt{136}=c$

HW: WB p. 125