Bell Work

A-REI.3.6

Guy and Jim work at a furniture store. Guy is paid \$185 per week plus 3% of his total sales in dollars, x, which can be represented by $g(x) = 185 + 0.03x$. Jim is paid \$275 per week plus 2.5% of his total sales in dollars, x, which can be represented by $f(x) = 275 + 0.025x$. Determine the value of x, in dollars, that will make their weekly pay the same.

$185 + 0.03x = 275 + 0.025x$

$-0.03x \quad -0.03x$

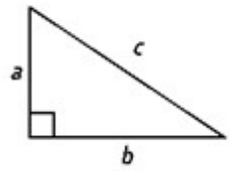
$185 = 275 - .005x$

$-275 \quad -275$

$\frac{-90}{-.005} = \frac{-0.005x}{-.005}$

$x = \$18{,}000$

The Pythagorean Theorem



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

1) $a = 9,\ b = 12$

$9^2 + 12^2 = c^2$

$81 + 144 = c^2$

$225 = c^2$

$\sqrt{225} = \sqrt{c^2}$

$15 = c$

2) $b = 12, c = 13$

$a^2 + 12^2 = 13^2$

$a^2 + 144 = 169$

$-144 \quad -144$

$a^2 = 25$

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

$a = 5$

3) $a = 12, c = 37$

$12^2 + b^2 = 37^2$

$144 + b^2 = 1369$

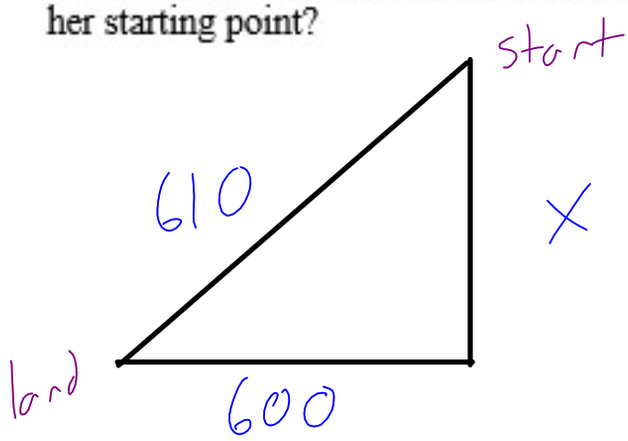
$-144 \quad -144$

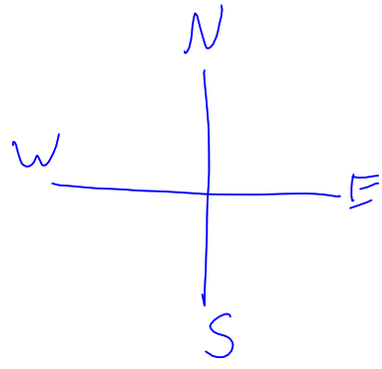
$b^2 = 1225$

$\sqrt{b^2} = \sqrt{1225}$

$b = 35$

4) A pilot flies a plane south and then 600 miles west, where she lands the plane. How far south did the pilot fly the plane if she lands 610 miles from her starting point?





$x^2 + 600^2 = 610^2$

$x^2 + 360000 = 372100$

$-360000 \quad -360000$

$x^2 = 12{,}100$

$\sqrt{x^2} = \sqrt{12{,}100}$

$x = 110$ miles

Determine whether the given lengths can be side lengths of a right triangle.

12 cm, 36 cm, 37 cm

$12^2 + 36^2 = 37^2$

$144 + 1296 = 1369$

$1440 = 1369$

No

10 ft, 24 ft, 26 ft

$10^2 + 24^2 = 26^2$

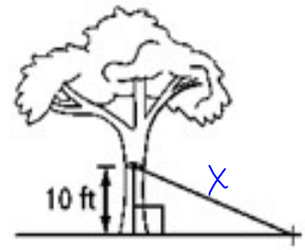
$100 + 576 = 676$

$676 = 676$

Yes

c = largest #, longest side of a △

A landscaper attaches a guy wire 10 ft up the trunk of a newly planted sapling. He stakes the wire between 20 and 25 feet from the tree. What could be the length of the guy wire if it forms a right triangle with the tree?



20 - 25

$10^2 + 20^2 = x^2$

$100 + 400 = x^2$

$500 = x^2$

$\sqrt{500} = \sqrt{x^2}$

$22.4 \text{ ft} = x$

$10^2 + 25^2 = c^2$

$100 + 625 = c^2$

$725 = c^2$

$\sqrt{725} = \sqrt{c^2}$

$c = 26.9 \text{ ft}$

Ticket out the door.

Explain in words how to solve the pythagorean theorem when a = 4 and c = 5.