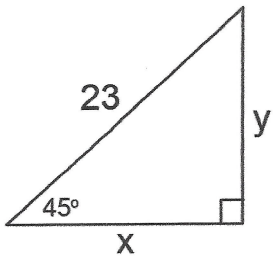
Bellwork Geo Monday, March 30, 2020

1. All sides of a right triangle are integers. Below are two of these sides. Find the missing side.

45, 53, _____

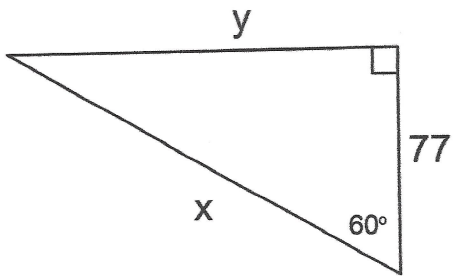
2. Find the EXACT value of x and y in each triangle. Give answer in simplified radical form. Rationalize the denominator as needed.

a)



$x =$ $y =$

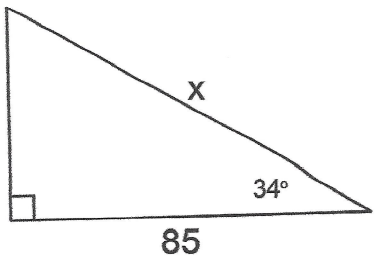
b)



$x =$ $y =$

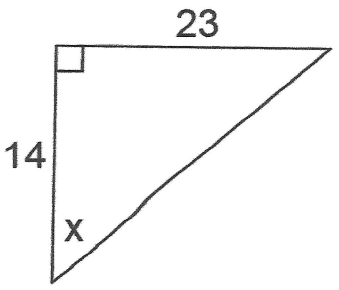
3. Find the value of x in each triangle to the nearest hundredth.

a)



$x =$

b)



$x =$

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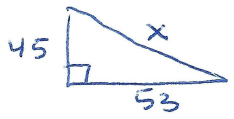
ANSWERS

1. All sides of a right triangle are integers. Below are two of these sides. Find the missing side.

45, 53, 28

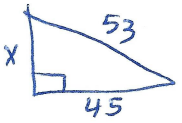
CASE 1
missing side is hyp



$\sqrt{x^2} = \sqrt{45^2 + 53^2}$

$x = 69.53$ ✗

CASE 2
missing side is a leg



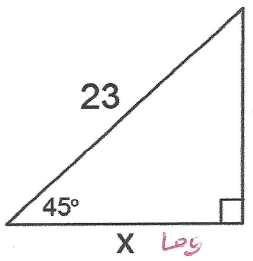
$x^2 + 45^2 = 53^2$

$\sqrt{x^2} = \sqrt{53^2 - 45^2}$

$x = 28$ ✓

2. Find the EXACT value of x and y in each triangle. Give answer in simplified radical form. Rationalize the denominator as needed.

a)



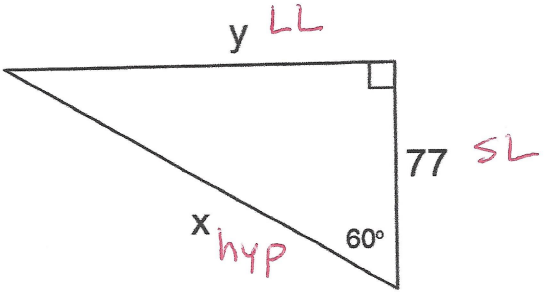
legs are ≅

$x = \frac{23\sqrt{2}}{2}$ $y = \frac{23\sqrt{2}}{2}$

$Leg = \frac{hyp}{\sqrt{2}} = \frac{23}{\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}}$

$= \frac{23\sqrt{2}}{2}$

b)



$x = 154$

$hyp = SL \cdot 2$

$x = 77 \cdot 2$

$x = 154$

$y = 77\sqrt{3}$

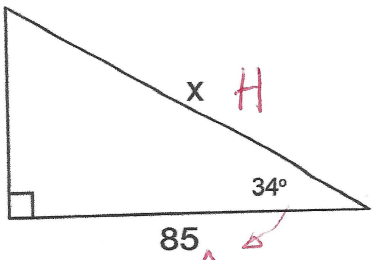
$LL = SL \cdot \sqrt{3}$

$y = 77 \cdot \sqrt{3}$

3. Find the value of x in each triangle to the nearest hundredth.

a)

SOHCAHTOA



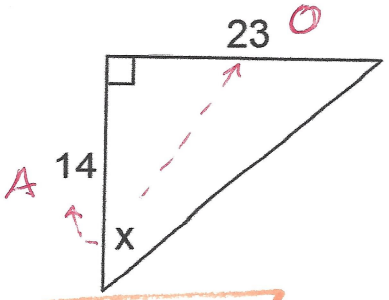
$x = 102.53$

$\cos 34° = \frac{85}{x}$

$x = \frac{85.1}{\cos 34°} = \frac{85}{\cos 34°}$

$x = 102.53$

b)



SOHCAHTOA

$x = 58.67°$

$\tan x = \frac{23}{14}$

$x = \tan^{-1}\left(\frac{23}{14}\right)$

$x = 58.67°$