Bellwork Geo Wednesday, May 13, 2020

1. The three sides of a right triangle are all whole numbers. Two of the sides are 36 and 85, find the third side.

2. Find the EXACT area of an Equilateral Triangle whose apothem is 9 inches long.

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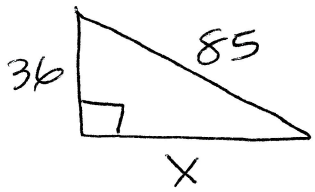
ANSWERS

1. The three sides of a right triangle are all whole numbers. Two of the sides are 36 and 85, find the third side.

IF MISSING SIDE IS A LEG



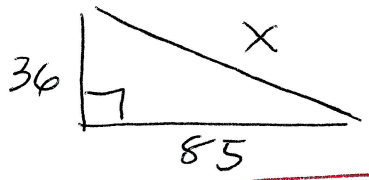
$85^2 = x^2 + 36^2$

$\sqrt{x^2} = \sqrt{85^2 - 36^2}$

$x = 77$

OR

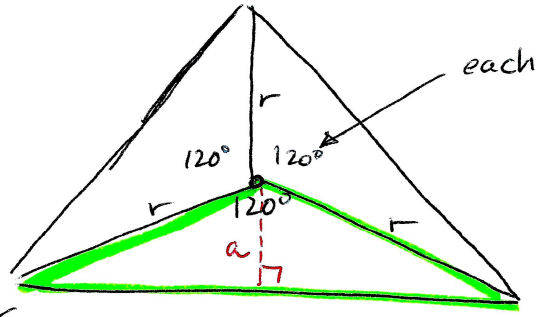
IF MISSING SIDE IS THE HYPOTENUSE



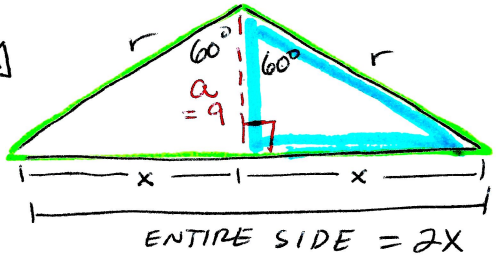
$\sqrt{x^2} = \sqrt{36^2 + 85^2}$

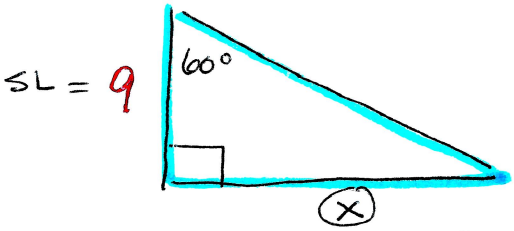
$x = 92.31$

2. Find the EXACT area of an Equilateral Triangle whose apothem is 9 inches long.



each central $\angle = \frac{360}{3} = 120$





$LL = SL \cdot \sqrt{3} = 9\sqrt{3}$

$x = 9\sqrt{3}$

entire side $= 2x$
$= 2(9\sqrt{3})$
$= 18\sqrt{3}$

perimeter $= 3(18\sqrt{3})$

$p = 54\sqrt{3}$

$A = \frac{1}{2} a \cdot p$

$= \frac{1}{2}(9)p$

$= \frac{1}{2}(9)(54\sqrt{3}) = 243\sqrt{3}$ in^2