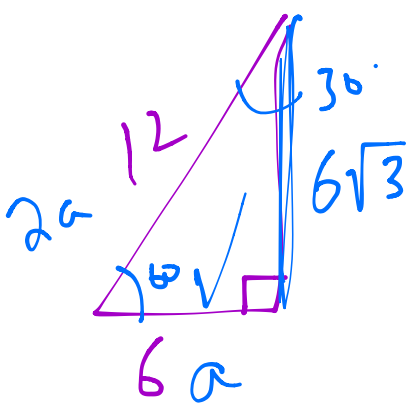
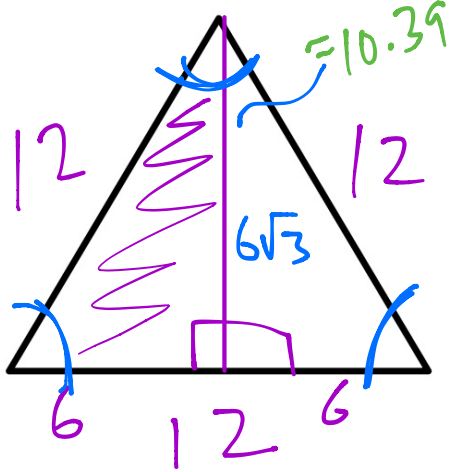
Good morning: warm up in notebooks

The equilateral triangle below has a perimeter of 36 cm.
What is its area?





≈ 10.39 $\frac{180^\circ}{3} = 60^\circ$

have a device with you today please

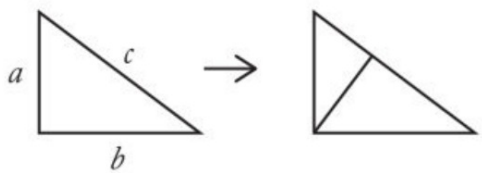
$A = \frac{1}{2}(12)(6\sqrt{3})$

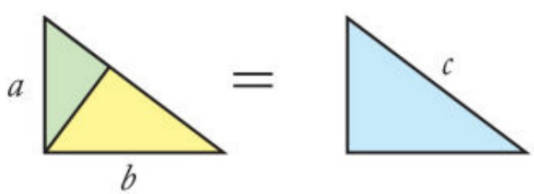
$36\sqrt{3}\ cm^2$

$62.35\ cm^2 \approx$

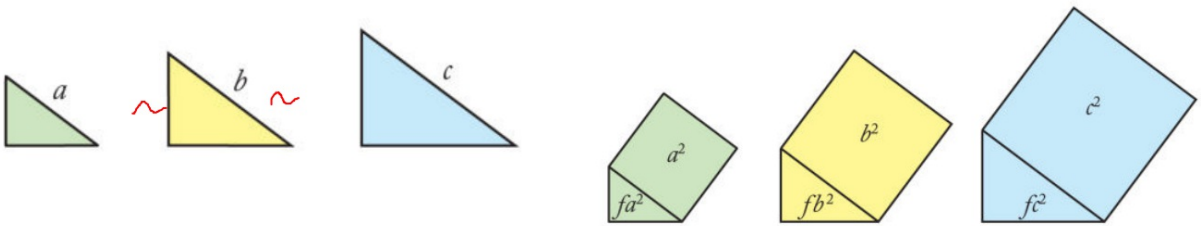
reminder:
assess Monday tutoring/retakes today 4-5p

Einstein's Childhood Proof of the Pythagorean Theorem





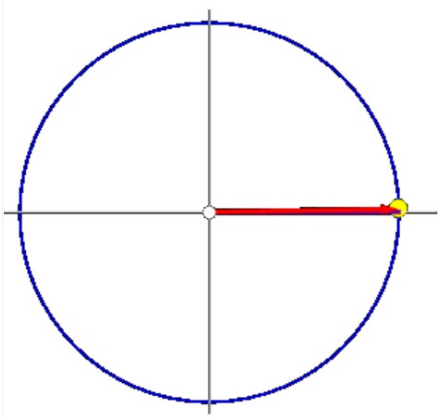
$$A_{green} + A_{yellow} = A_{blue}$$

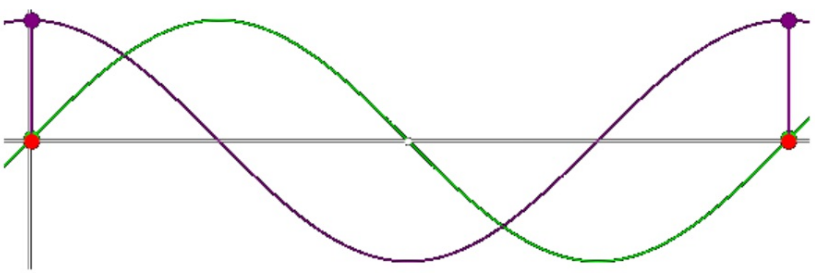


[redacted]

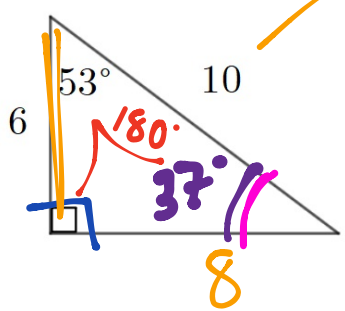
Trigonometry!!!!!

Triangles..... Waves??

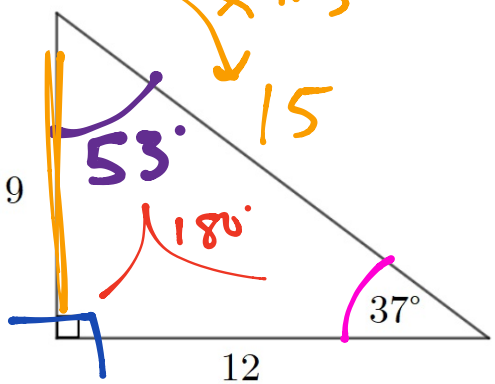




Find all the measures you can. Avoid Pythagoras' Theorem



AA ~

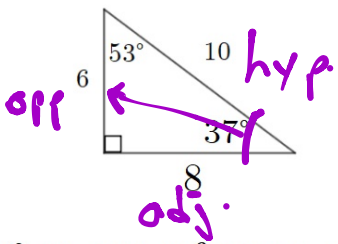


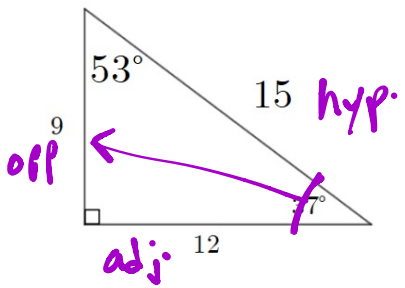
× 1.5

15

$\frac{9}{6} = 1.5$ (scale factor)

÷ 1.5

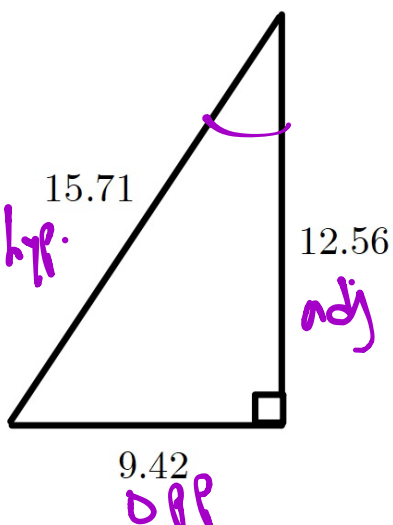




Using 37° as our reference angle, find the following ratios in decimal form:

	Small Triangle	Large Triangle
$\frac{\textit{opposite}}{\textit{hypotenuse}}$	6/10 = 0.6	9/15 = 0.6
$\frac{\textit{adjacent}}{\textit{hypotenuse}}$	8/10 = 0.8	12/15 = 0.8
$\frac{\textit{opposite}}{\textit{adjacent}}$	6/8 = 0.75	9/12 = 0.75

Sketch this triangle



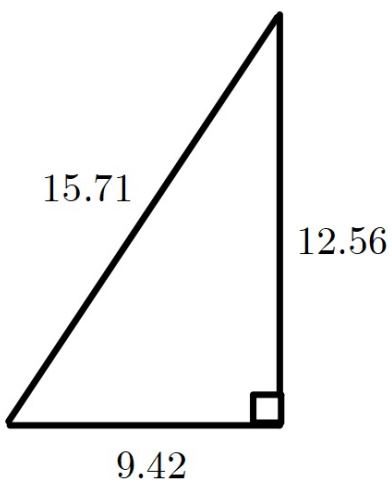
Find the same ratios, with the smallest angle as the reference angle.

opposite the shortest side

$$\frac{\text{opposite}}{\text{hypotenuse}} \quad \frac{9.42}{15.71} = 0.6$$

$$\frac{\text{adjacent}}{\text{hypotenuse}} \quad \frac{12.56}{15.71} = 0.8$$

$$\frac{\text{opposite}}{\text{adjacent}} \quad \frac{9.42}{12.56} = 0.75$$

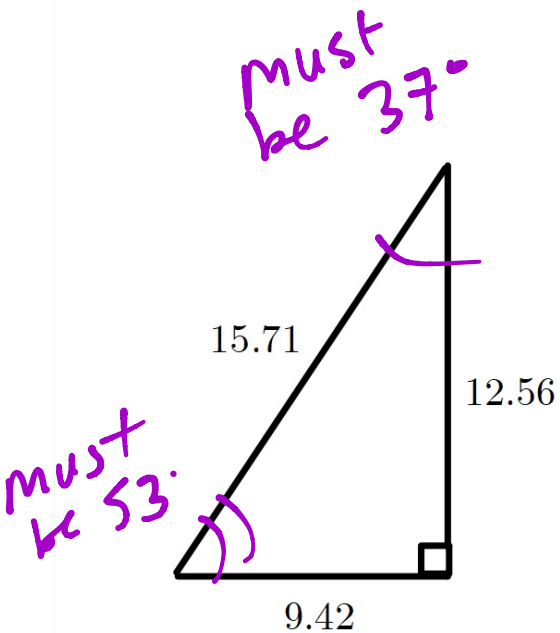


Based on these ratios, what can you deduce about the angle measures?

$$\frac{\text{opposite}}{\text{hypotenuse}} \quad 0.6$$

$$\frac{\text{adjacent}}{\text{hypotenuse}} \quad 0.8$$

$$\frac{\text{opposite}}{\text{adjacent}} \quad 0.75$$



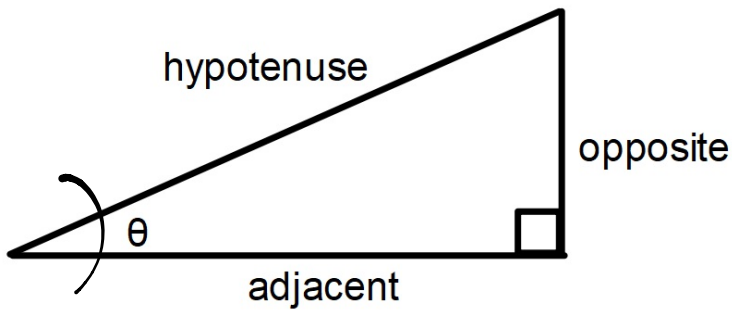
We have "classified" this triangle as being of the same type as the other 2 we examined, because the side lengths within it are in the same ratio as its 'relatives.'

Thus, these ratios are characteristic of triangles of this type.

$\sin(\theta) = \frac{\text{opposite}}{\text{hypotenuse}}$

$\cos(\theta) = \frac{\text{adjacent}}{\text{hypotenuse}}$

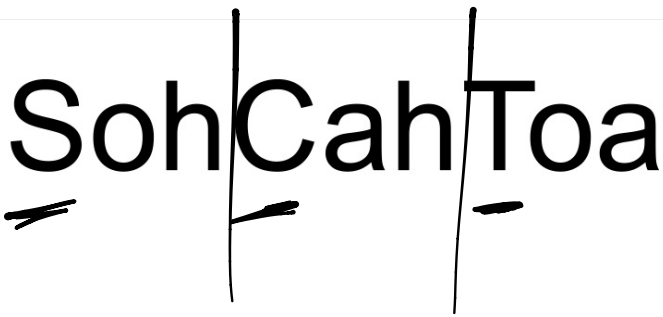
$\tan(\theta) = \frac{\text{opposite}}{\text{adjacent}}$



sine

cosine

tangent


SohCahToa

Important to note

sin(

cos(

tan(

are functions

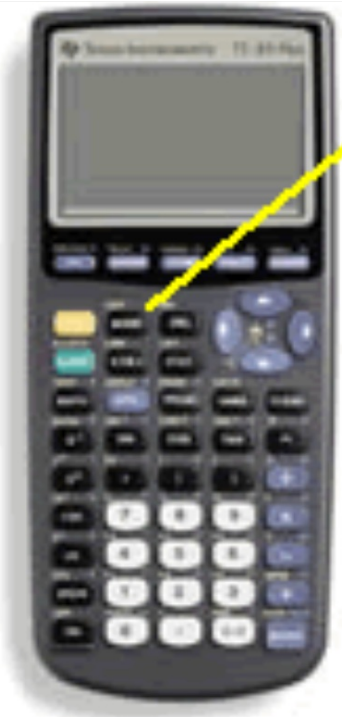
Their arguments (inputs) are <u>angle measures</u>.

Their outputs are <u>ratios</u>

Ex.

$\sin(38°)$ "what is the opposite/hypotenuse ratio of a $38°$ angle?"

$\tan(68°)$ "what is the opposite/adjacent ratio of a $68°$ angle?"



MODE window

Normal Sci Eng
Float 0123456789
Radian Degree
Func Par Pol Seq
Connected Dot
Sequential Simul
Real a+bi re^θi
Full Horiz G-T

HW
#1-12 on the first trig handout

assessment is Monday