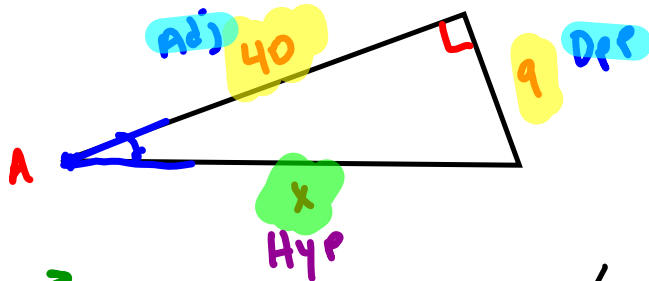


## Geometry: Solving Mixed Triangle Examples

Ex #1: Solve for A and x.



SOH CAH TOA

$$\tan A = \frac{9}{40}$$
$$\tan^{-1}\left(\frac{9}{40}\right) = A$$
$$A \approx 12.68^\circ$$

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

leg<sup>2</sup> + leg<sup>2</sup> = Hyp<sup>2</sup>

$$40^2 + 9^2 = x^2$$

used calc

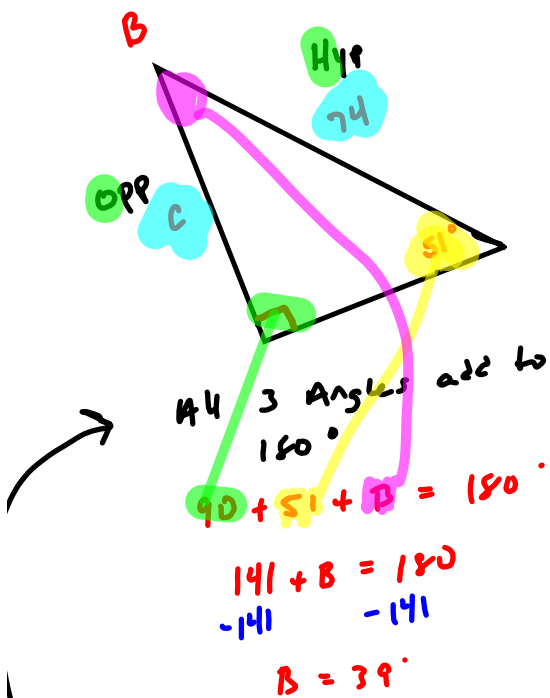
$$1681 = x^2$$
$$\sqrt{1681} = \sqrt{x^2}$$
$$x = \sqrt{1681}$$
$$x = 41$$

Topics we used: Pythagorean Theorem for x

Inverse Trig Functions to find A.

# Right Triangle Recap, Mixed Problems

Ex #2: Solve for B and c.



To find c.  
SOH CAH TOA  
Look At given Angle : 51°

$$74 \cdot \sin 51^\circ = \frac{c}{74}$$

$$c = 74 \cdot \sin 51^\circ$$

use calc.

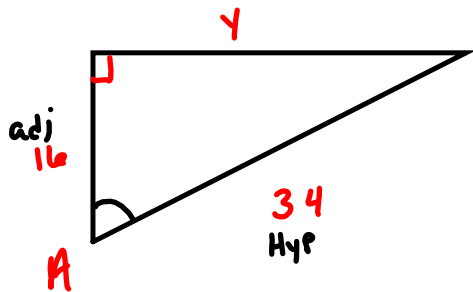
$$c \approx 57.5$$

Topics we used: Regular trig Functions.  
to find c.

Interior Angles Theorem.  
To find B

### Ex #3: Solve for A and y.

Use example 1 to help you with this. Try to complete the problem by using as little help as possible. Only refer to the example in small doses, as you require it. Use your brain as much as possible!



SOH CAH TOA

$$\cos A = \frac{16}{34}$$

swap to inverse to solve for A.

$$\cos^{-1}\left(\frac{16}{34}\right) = A$$

$$A \approx 61.9^\circ$$

Pythag. Theorem.

$$16^2 + y^2 = 34^2$$

$$256 + y^2 = 1156$$

$$-256 \quad -256$$

$$y^2 = 900$$

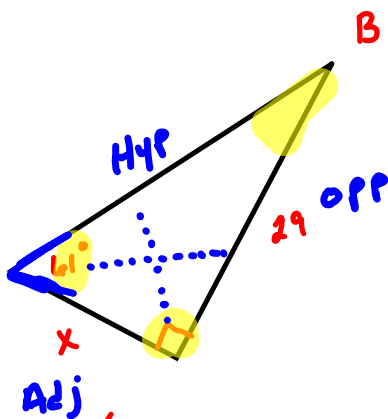
$$\sqrt{y^2} = \sqrt{900}$$

$$y = 30$$

Topics we used: Pythagorean Theorem.

Inverse Trig functions.

Ex #4: Solve for x and B.



Interior Angles Theorem

$$61 + 90 + B = 180$$

$$151 + B = 180$$

$$\begin{array}{r} -151 \\ -151 \end{array}$$

$$B = 29^\circ$$

~~$x \cdot \tan 61^\circ = 29$~~

~~$\tan 61^\circ$~~   $\tan 61^\circ$

$$x = \frac{29}{\tan 61^\circ}$$

$$x \approx 16.1$$

Regular Trig functions to find x.

SOH CAH TOA  
 Looking at 61° ...  
 x is Adj ; 29 is opp.

~~$x \cdot \tan 61^\circ = \frac{29}{x} \cdot x$~~



Topics we used:



## When to use What?

Pythagorean Theorem:

When you have 2 sides and need to find the third.

Given:   
needing to find: 

Regular Trig Functions:

When you are given one angle and one side and want to find another missing side.

Inverse Trig Functions:

given: 2 sides

want to find: an angle

Interior Angle Theorem:

given: 2 angles

want to find: 3rd missing angle.

## Attachments

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MSoOfficePNG.png