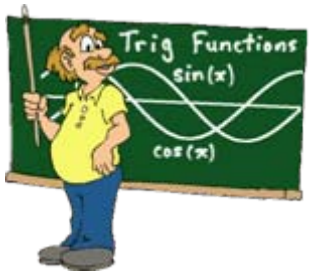
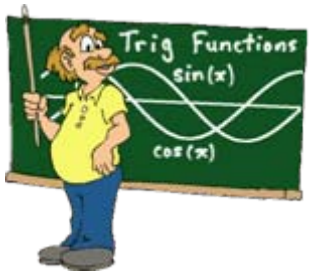


Trigonometry Rap

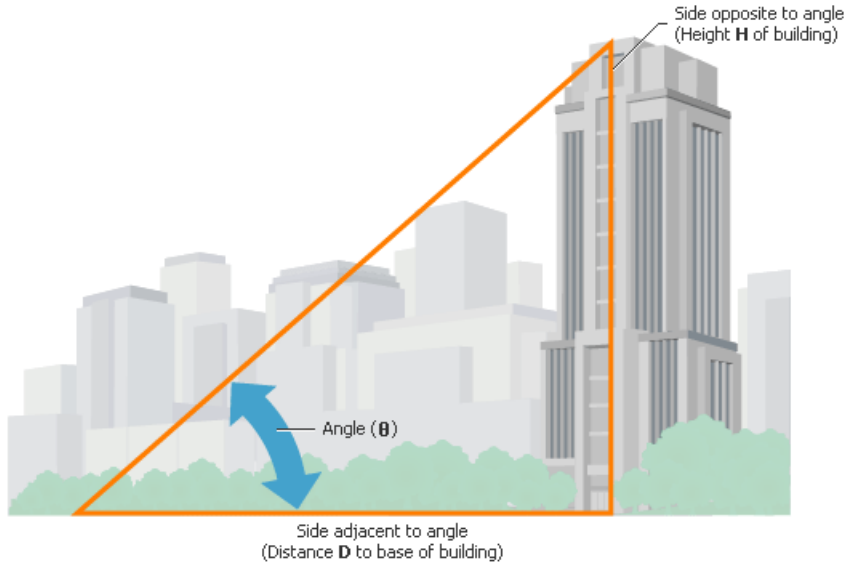
To all the ordered pairs in the Cartesian plane
From 1st to the 2nd to the 3rd to the 4th quadrants
Are you ready?

Trigonometry is legit
So…Get triggy, get triggy with it
Get triggy, get triggy with it
Understanding it is to your benefit
So get triggy

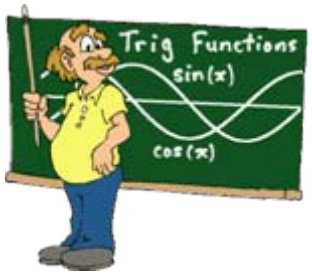


Trigonometry Rap

If you got a right triangle
With unknown sides and angles
Use the primary trigonometric ratios
Which are functions called
    Sine, cosine, and tangent
Involving the sides
    Hypotenuse, opposite and adjacent
To figure out how they're related
Just keep singing this bit of the song
S to the O to the H, Oh, Oh
C to the A to the H, Ah, Ah
T to the O to the A, Oh Ah, Oh Ah
SOH, SOH, SOH, SOH CAH TOA

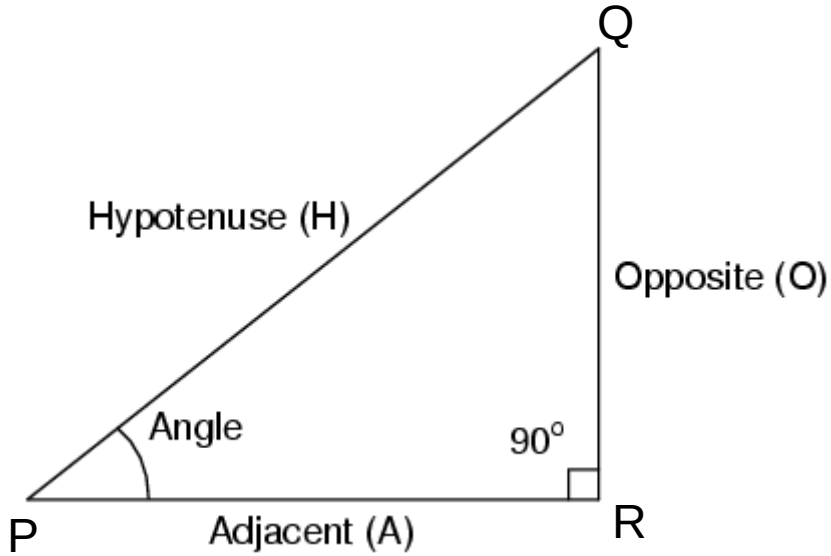


SOHCAHTOA



Trigonometry Rap

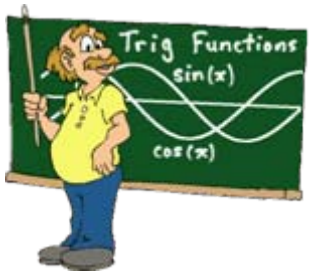
S to the O to the H
Represents the sine ratio
One of the members of the trio
From the angle of interest
It is no contest
Identify the opposite side and hypotenuse
Review the problem to reveal the clues
Now you can solve for one of variables
If two of the three are available



SOHCAHTOA

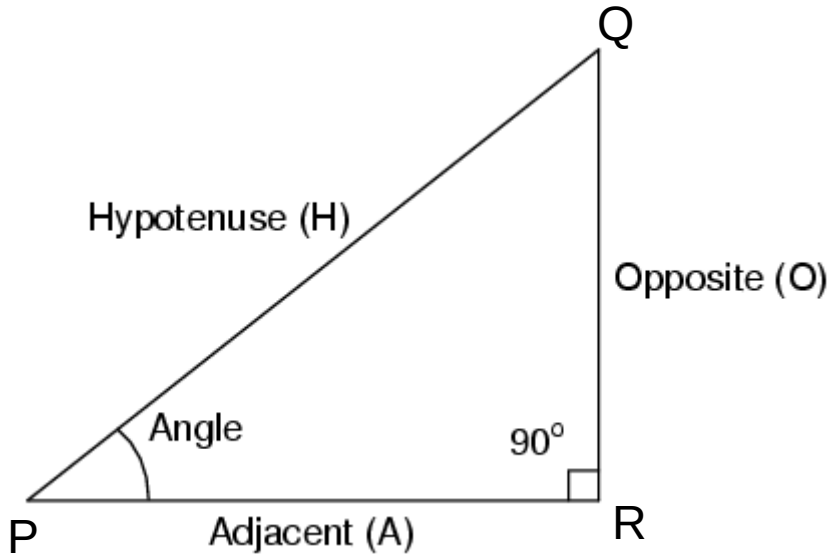
$$\sin P = \frac{opposite}{hypotenuse}$$

$$\sin P = \frac{QR}{PQ}$$



Trigonometry Rap

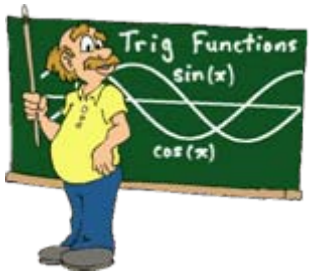
C to the A to the H
Represents the cosine ratio
One of the members of the trio
From the angle of interest
It is no contest
Identify the adjacent side and hypotenuse
Review the problem to reveal the clues
Now you can solve for one of variables
If two of the three are available



SOHCAHTOA

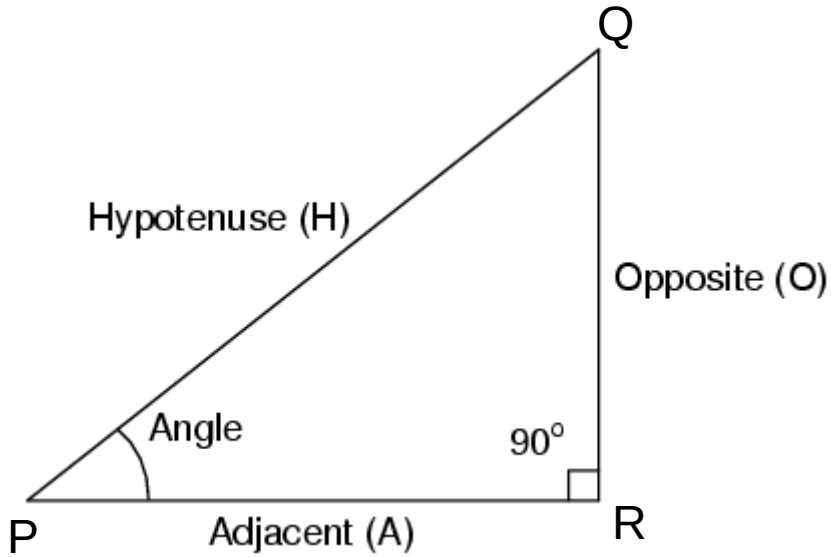
$$\cos P = \frac{adjacent}{hypotenuse}$$

$$\cos P = \frac{PR}{PQ}$$



Trigonometry Rap

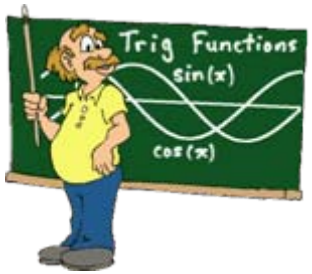
T to the O to the A
Represents the tangent ratio
One of the members of the trio
From the angle of interest
It is no contest
Identify the opposite and adjacent sides
Review the problem to reveal the clues
Now you can solve for one of variables
If two of the three are available



SOHCAHTOA

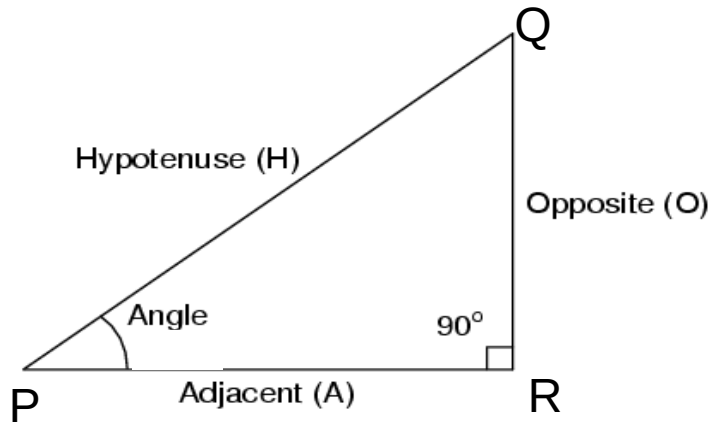
$$\tan P = \frac{opposite}{adjacent}$$

$$\tan P = \frac{QR}{PR}$$



Trigonometry Rap

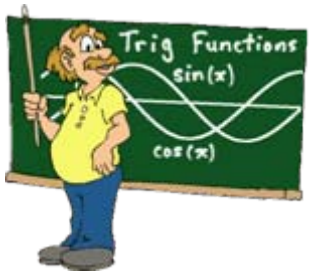
To remember how each ratio's related
Just keep singing this bit of the song
S to the O to the H, Oh, Oh
C to the A to the H, Ah, Ah
T to the O to the A, Oh Ah, Oh Ah
SOH, SOH, SOH, SOH CAH TOA



SOHCAHTOA

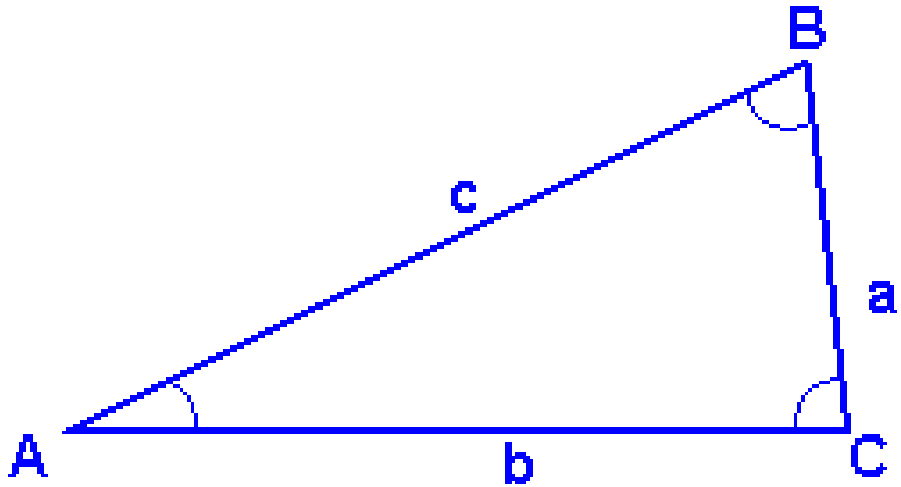
$$\sin P = \frac{opposite}{hypotenuse} \qquad \cos P = \frac{adjacent}{hypotenuse} \qquad \tan P = \frac{opposite}{adjacent}$$

$$\sin P = \frac{QR}{PQ} \qquad \cos P = \frac{PR}{PQ} \qquad \tan P = \frac{QR}{PR}$$

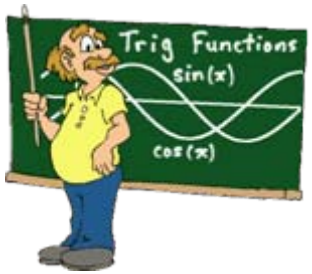


Trigonometry Rap

Trigonometry is legit
So… Get triggy, get triggy with it
Get triggy, get triggy with it
Understanding it is to your benefit
So get triggy

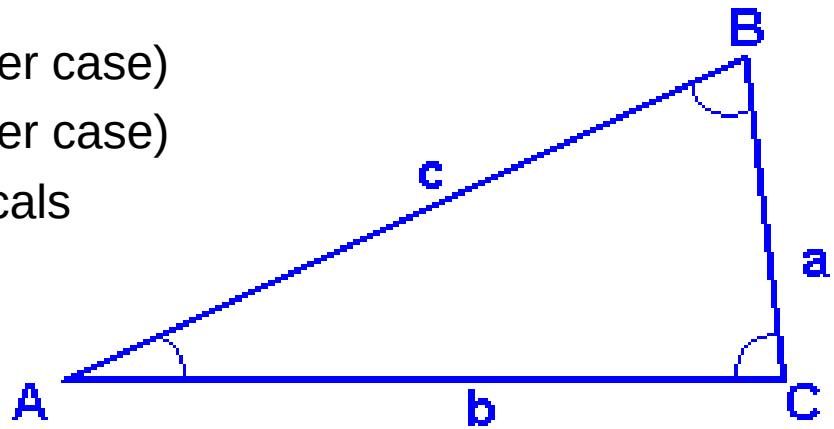


If your triangle doesn't have a right angle
Relax, there is no need to struggle
There are two laws to help you through
Depending on the information available to you



Trigonometry Rap

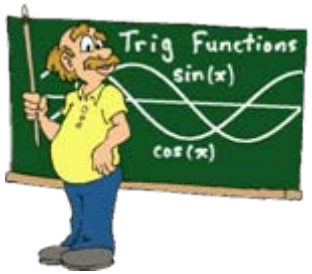
The sine law is a relation of three equal ratios
Sine A (upper case) over a (lower case)
Equal to Sine B (upper case) over b (lower case)
Equal to Sine C (upper case) over c (lower case)
It can also be expressed as their reciprocals
If it makes the problem easier to solve



$$\frac{\sin A}{a} = \frac{\sin B}{b} = \frac{\sin C}{c}$$

OR

$$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$



Trigonometry Rap

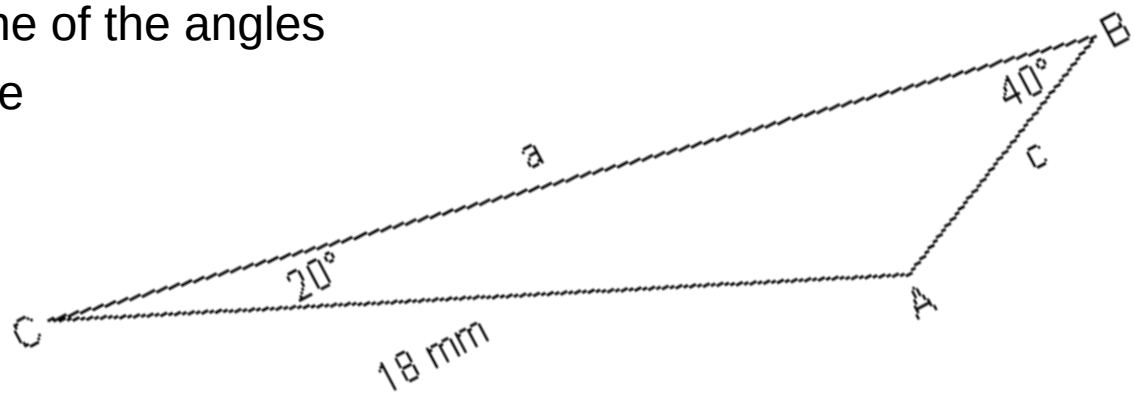
The Sine Law is the cat's meow
Solving problems given a little know how
Examine the information that is before you
To decide if this is the right law to pursue

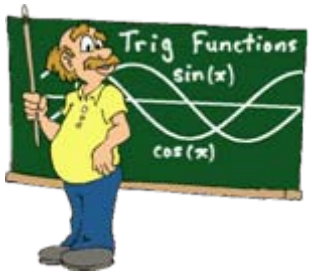
$$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$

$$\frac{a}{\sin A} = \frac{18}{\sin 40} = \frac{c}{\sin 20}$$

$$\frac{18}{\sin 40} = \frac{c}{\sin 20}$$

Two angles and one side are needed
To use this law…. only in the case provided
That the side is opposite one of the angles
That is given in your triangle
Then use the sine law
Solve for the unknown side
And cheer hip hip hoorah!





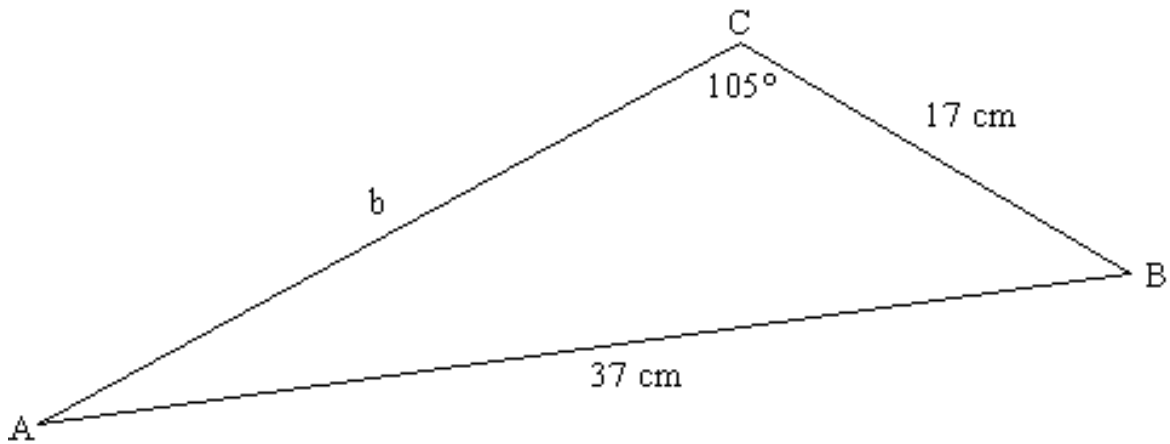
Trigonometry Rap

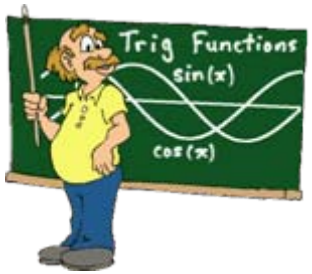
Or two sides and one angle are needed
To use this law…. only in the case provided
That the angle is opposite one of the sides
That your triangle provides
Then use the sine law
Solve for the unknown angle
And cheer hip hip hoorah!

$$\frac{\sin A}{a} = \frac{\sin B}{b} = \frac{\sin C}{c}$$

$$\frac{\sin A}{17} = \frac{\sin B}{b} = \frac{\sin 105}{37}$$

$$\frac{\sin A}{17} = \frac{\sin 105}{37}$$





Trigonometry Rap

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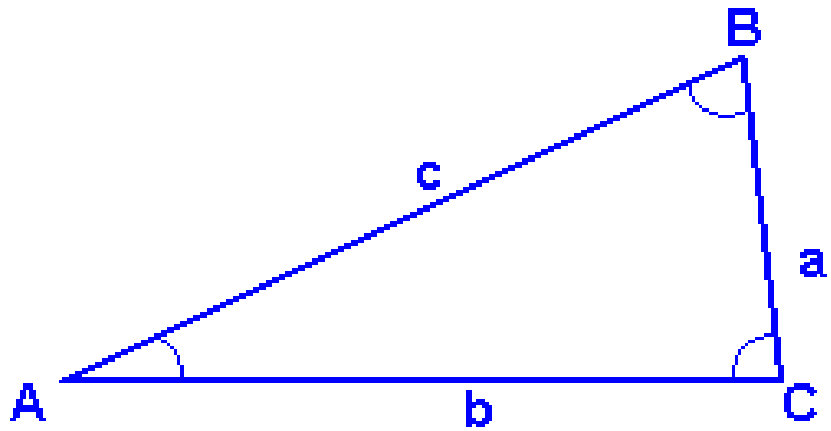
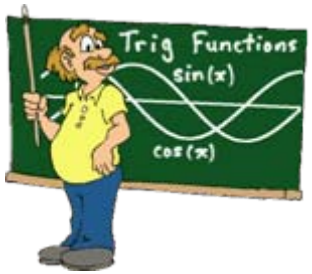


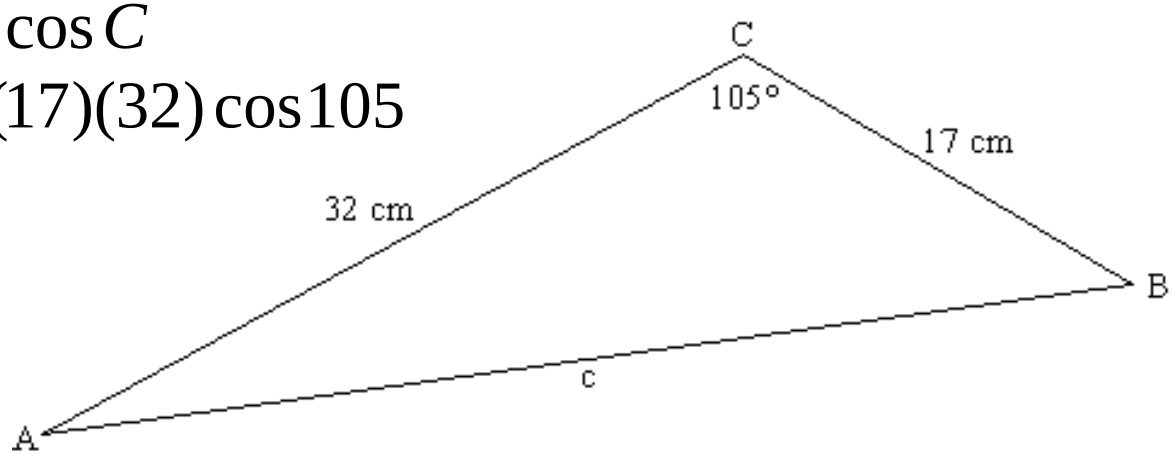
The Cosine law is the bee's knees
It will solve your problem with ease
Examine the information that is before you
To decide if this is the right law to pursue

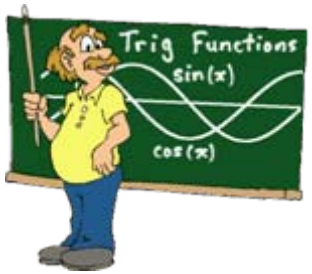


Trigonometry Rap

The cosine law is the longest of all
Which makes it difficult to recall
c squared equals a squared plus b squared
minus 2 times a times b times cosine C (upper case)
Long I know but elegant to use

$$c^2 = a^2 + b^2 - 2ab\cos C$$
$$c^2 = 17^2 + 32^2 - 2(17)(32)\cos 105$$





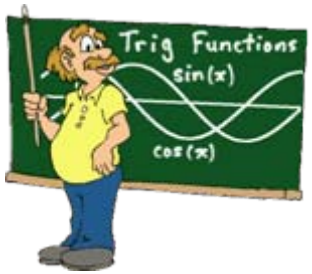
Trigonometry Rap

It can be expressed in this form two different ways
Given the information that the triangles displays
a squared equals b squared plus c squared
minus 2 times b times c times cosine A (upper case)
Or
b squared equals a squared plus c squared
minus 2 times a times c times cosine B (upper case)

With this information, use the cosine law
Solve for the unknown side and cheer hip hip hoorah!

$$a^2 = b^2 + c^2 - 2bc\cos A$$

$$b^2 = a^2 + c^2 - 2ac\cos B$$



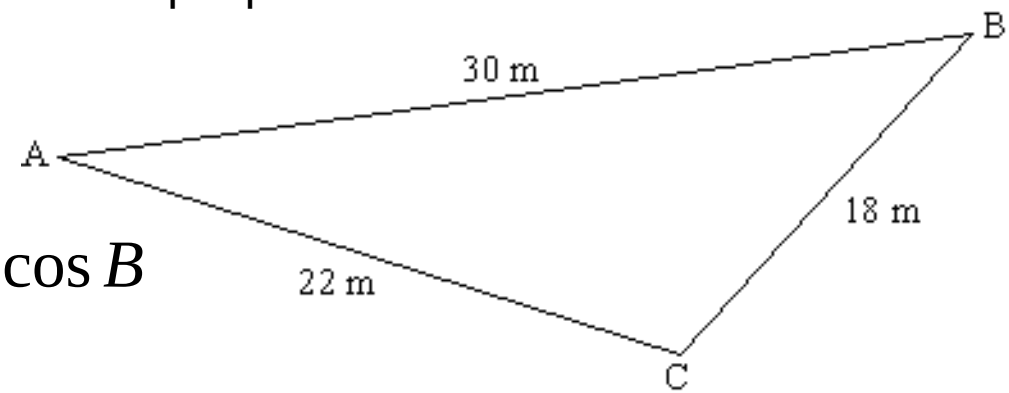
Trigonometry Rap

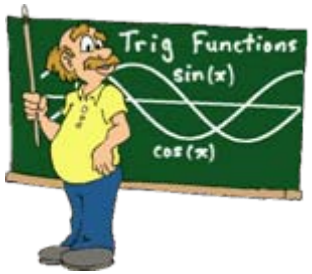
If you know all three sides but not a single angle
You can use this law to solve for any angle
By rearranging one of the equations to suit
Your solution will be an angle that may be obtuse or acute

With this information, use the cosine law
Solve for the unknown angle and cheer hip hip hoorah!

$$a^2 = b^2 + c^2 - 2bc\cos A$$

$$18^2 = 22^2 + 30^2 - 2(22)(30)\cos B$$





Trigonometry Rap

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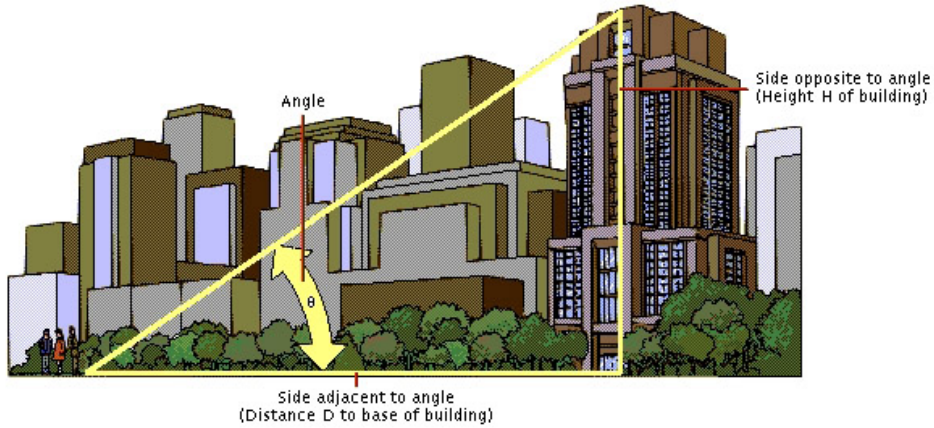

That is grade ten trigonometry in a nutshell
Understanding it will serve you well

So remember
Trigonometry is legit
Get triggy, get triggy with it
Get triggy, get triggy with it
Understanding it is to your benefit
So get triggy