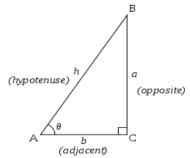


TRIGONOMETRIC RATIOS

Created: Monday, 19 September 2011 06:59 | Published: Monday, 19 September 2011 06:59 | Written by Super User | Print

Introduction to Trig Ratios

In the adjoining figure, we have ? ABC right angled at C.



We have six <u>trigonometric ratios</u> with respect to ? BAC = ?, and they are as follows:

- <u>Sine ?</u>
- Cosine?
- Tangent?
- Cosecant?
- Secant?
- Cotangent?

Let the Hypotenuse in ? ABC = h Adjacent in ? ABC = b Opposite in ? ABC = a

Now, we define the above mentioned trigonometric ratios:

- Sine ? or Sin ? = Opposite / Hypotenuse = a / h
- Cosine ? or Cos ? = Adjacent / Hypotenuse = b / h
- Tangent ? or Tan ? = Opposite / Adjacent = a / b
- Cosecant? or Cosec? = Hypotenuse / Opposite = h / a
- Secant ? or Sec ? = Hypotenuse / Adjacent = h / b

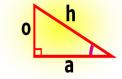
Cotangent? or Cot? = Adjacent / Opposite = b / a

From the above discussion, it is clear that the last three trigonometric ratios are opposite of the first three trigonometric ratios respectively.

That is,

- Cosecant? or Cosec? = 1 / Sine?
- Secant ? or Sec ? = 1 / Cosine ?
- Cotangent ? or Cot ? = 1 / Tangent ?

Trigonometry



Soh Cah Toa Soh Cah Toa

There is one short method for remembering all sixtrigonometric ratios.

SOH

'S' stands for Sine

'O' stands for Opposite

'H' stands for Hypotenuse

Sine = Opposite / Hypotenuse

CAH

'C' stands for Cosine

'A' stands for Adjacent

'H' stands for Hypotenuse

Cosine = Adjacent / Hypotenuse

TOA

'T' stands for Tangent

'O' stands for Opposite

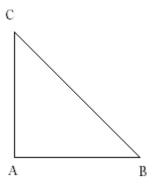
'A' stands for Adjacent

Tangent = Opposite / Adjacent

As discussed above, that Cosecant, Secant, and Cotangent are opposites of Sine, Cosine and Tangent respectively.

Let's solve few problems based on the above discussion:

In ? ABC, right angled at A, if AB = 12, AC = 5 and BC = 13, find all the six trigonometric ratios of angle B.



With reference to above ? ABC we have,

Opposite = AC = 5

Adjacent = AB = 12

Hypotenuse = BC = 13

Using the definitions of trigonometric ratios, we have

Sine B = Opposite / Hypotenuse = AC / BC = 5 / 13

Cosine B = Adjacent / Hypotenuse = AB / BC = 12 / 13

Tangent B = Opposite / Adjacent = AC / AB = 5 / 12

 $Cosecant\ B = Hypotenuse\ /\ Opposite = BC\ /\ AC = 13\ /\ 5$

Secant B = Hypotenuse / Adjacent = BC / AB = 13 / 12

Cotangent B = Adjacent / Opposite = AB / AC = 12 / 5

Now try it yourself! Should you still need any help, click here to schedule live online session with e Tutor!

About eAge Tutoring:

<u>eAgeTutor.com</u> is the premium online tutoring provider. Using materials developed by highly qualified educators and leading content developers, a team of top-notch software experts, and a group of passionate educators, eAgeTutor works to ensure the success and satisfaction of all of its students.

<u>Contact us</u> today to learn more about our tutoring programs and discuss how we can help make the dreams of the student in your life come true!

Reference Links:

- http://www.purplemath.com/modules/basirati.htm
- http://en.wikipedia.org/wiki/Sine
- http://en.wikipedia.org/wiki/Trigonometric_functions#Sine.2C_cosine.2C_and_tangent
- http://en.wikipedia.org/wiki/Tangent
- http://en.wikipedia.org/wiki/Trigonometry

Category:ROOT

Joomla SEF URLs by Artio