Trigonometry

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- What is trigonometry?
- Trigonometric ratios.
- Finding side lengths using trigonometric methods.
- Finding missing angles using trigonometric method.

What is trigonometry??

- Trigonometry is the study of triangles and its angles, and measuring it and calculating it, and mostly speaks about right angle triangles, and its angles

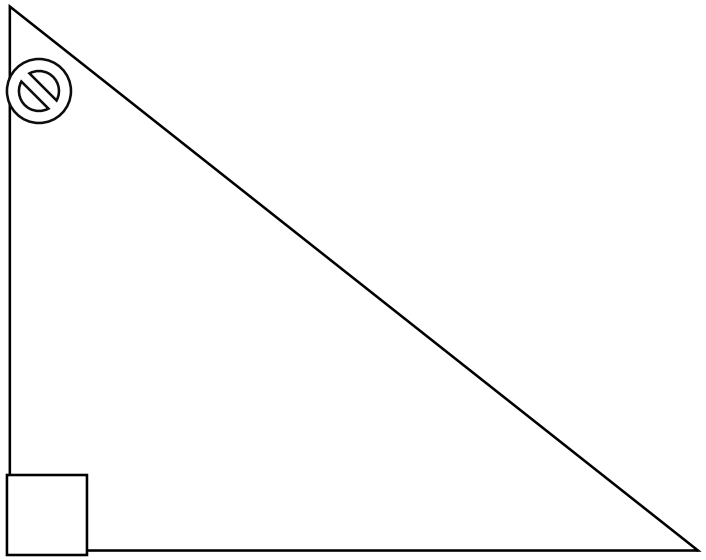
What is trigonometry??

› We will use some new and major mathematical terms in this chapter.

EX: adjacent, hypotenuse, cosine, sine, tangent.

What is trigonometry??

- To understand trigonometry we have to know and comprehend the parts of any right triangle.



⦰: is called theta and we can understand it as an angel.

- As we knew before, in any right angel, there is an hypotenuse and two legs, but here in trigonometry we will name these legs.

HYPOTENUSE: is the longest side and the side opposing to the right angel.

ADJACENT: is the side between the theta and the right angel triangle.

OPPOSITE: is the side opposite to the theta.

Trigonometric ratios

- We studied that similar triangles have the same ratio.
- But how to find the ratios of any right angle triangle??
- **Step1:** *we have to know the three types of ratios*

Sine

Cosine

Tangent

We can use these three types of ratios.

Trigonometric ratios.

› **STEP2:** *this part of the chapter is summarized in soh cah toa*

SOH

↓

SINE=OPPOSITE OVER HYPOTENUSE

CAH

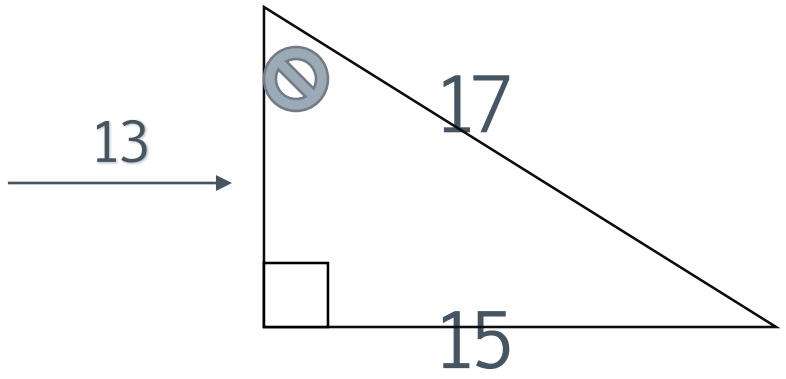
COSINE=ADJACENT OVER HYPOTENUSE

TOA

TANGENT= OPPISTE OVER ADJACENT

Trigonometric ratio

- But how to apply that?? Lets see!!



- Step1: label the sides.

So the side 15 is the: hypotenuse

Side 17 is the: opposite

Side 13 is the: adjacent

- **STEP2:** then apply

SIN.= opposite over hypotenuse= $\frac{15}{17}$

COS.= adjacent over hypotenuse= $\frac{13}{17}$

TAN.= opposite over adjacent= $\frac{15}{13}$

Now we understood the trigonometric ratios and applied it

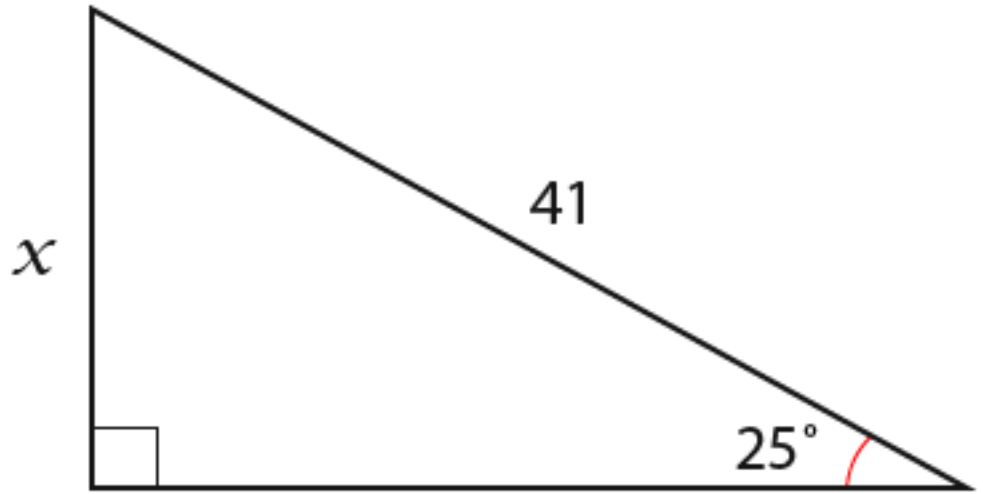
Finding side lengths using trigonometric method.

- We can use trigonometry is so many ways but we can use it finding the missing side.

- But how?? Lets see!!!!
- **STEP1:** label the missing side and the shown side in front of you.
- **STEP2: THEN SEEWHAT TYPE OF RATIO WE WILL USE**

STEP3: THEN THE MULTIPLICATION STEP.

APPLYING



Here the missing side is (x), and the shown side is 41

The x is the opposite, and the 41 is the hypotenuse

So wich type of ratio we will use??

Sine cause it is the relation sheep between opp. And hyp.

$$\text{San.}(25) = \frac{x}{41}$$

Then we will multiply 41 by by sin.(25)

X=13 ✖ sin.(25)=5.4

Finding missing angles using trigonometric method.

- And also we can use trigonometry to find the missing angel in any right angel triangle.

› But how?? lets see!!!

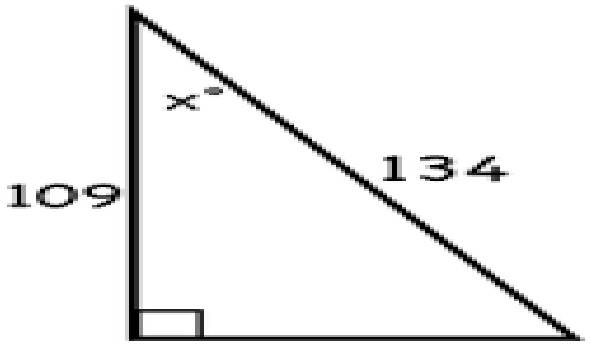
Step1: **we should have to known sides**

Step2: label the two sides and see which ratio we will use??

Step3: the inverse step

Step4: the answer is in degrees

applying



- First label the given sides, (134) is the hypotenuse,(109)is the adjacent.
- So we will use the cosine.
- Cos.=$\frac{134}{109}$
- Then the inverse step:
- So cosine^(-)1 = $\frac{109}{134}$

So it’s equal to=35.5

π

- Now, we finished our chapter and I hope you understood from me, and I want to thank you for attending my presentation.

Any questions????

THANK YOU!!!!!!!!