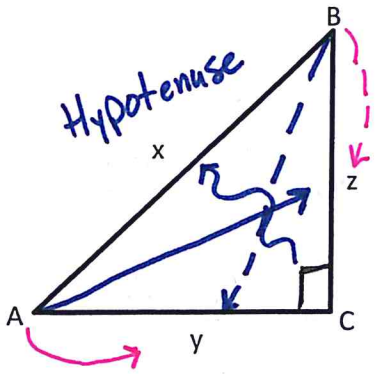
Trigonometry Ratios

Next to; cannot be the hypotenuse!



Sides: Opposite, Adjacent or Hypotenuse

Opposite <A: z Adjacent <A: y

Opposite <B: y Adjacent <B: z

Opposite <C: ~~X~~ ← Hyp. Adjacent <C: y / z ← 2 answers

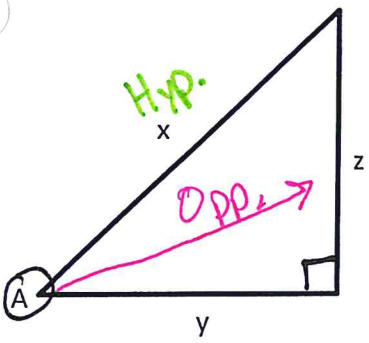
∠C is the 90° angle, so it is not used in trig ratios.

SOH CAH TOA

Sine

SOH

$\sin A = \frac{\text{Opp.}}{\text{Hyp.}}$

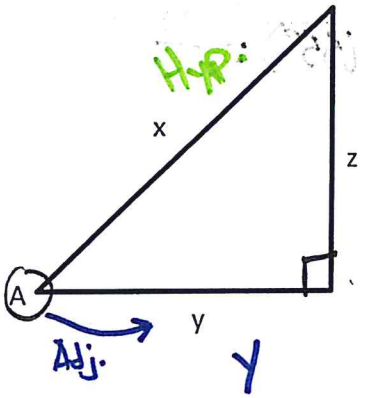


$\sin \angle A = \frac{z}{x}$

Cosine

CAH

$\cos A = \frac{\text{Adj.}}{\text{Hyp.}}$

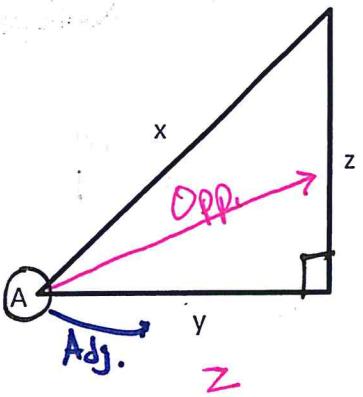


$\cos \angle A = \frac{y}{x}$

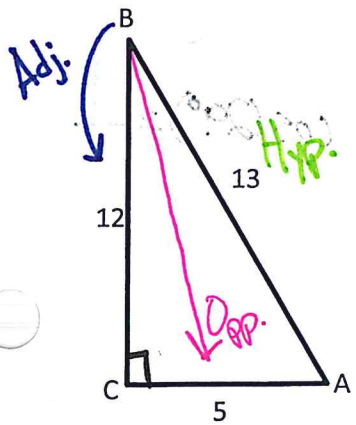
Tangent

TOA

$\tan A = \frac{\text{Opp.}}{\text{Adj.}}$



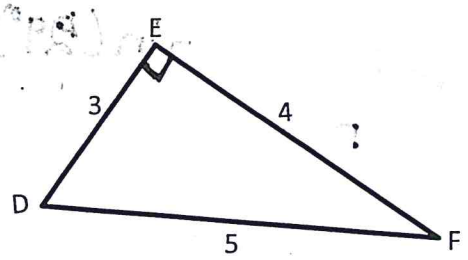
$\tan \angle A = \frac{z}{y}$



S O/H sin <B: 5/13

C A/H cos <B: 12/13

T O/A tan <B: 5/12



sin <D: 4/5

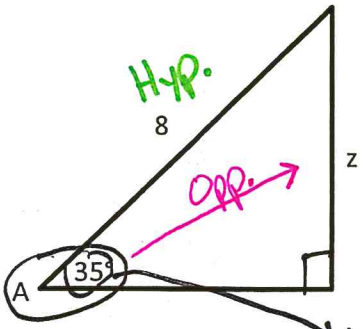
cos <F: 4/5

tan <D: 4/3

SOH CAH TOA

Missing Side Lengths

What ratio would help us solve for z in this triangle?



$\sin = \frac{opp.}{hyp.}$

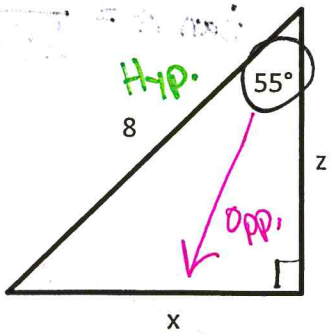
~~Sine~~; we have an opposite side + hypotenuse.

In order to solve for a missing side, you need to know an: angle measure and 1 side length

$\sin A = \frac{z}{8}$

Solve for z:

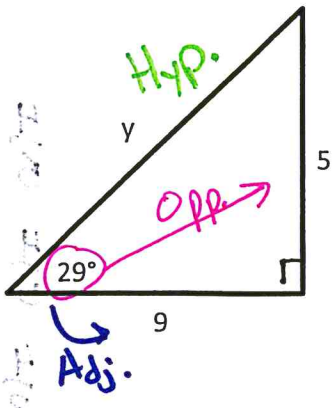
$\sin(35°) = \frac{z}{8}$



$\sin = \frac{opp.}{hyp.}$

Solve for x:

$\sin(55°) = \frac{x}{8}$



Solve for y:

$\sin(29°) = \frac{5}{y}$ OR $\cos(29°) = \frac{9}{y}$