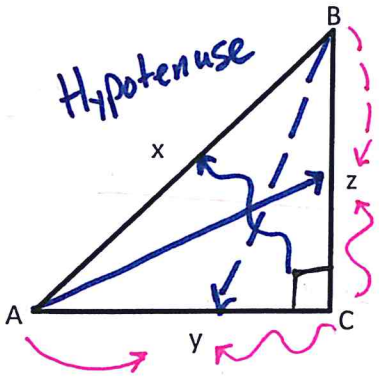
6th

Trigonometry Ratios

Next to; cannot be the hypotenuse!



Sides: Opposite, Adjacent or Hypotenuse

Opposite <A: z Adjacent <A: y

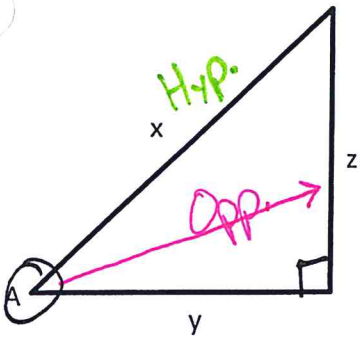
Opposite <B: y Adjacent <B: z

Opposite <C: x Adjacent <C: y/z

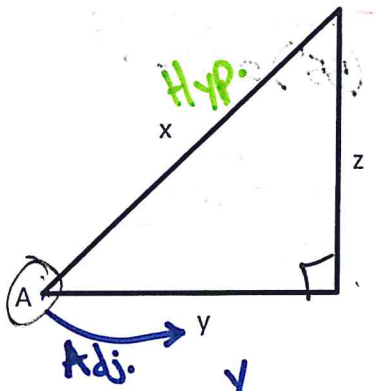
∠C is the 90° angle, so it is not used in trig. ratios.

SOH CAH TOA

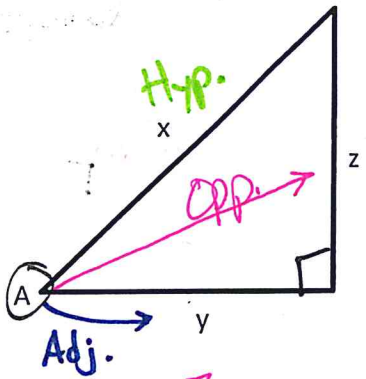
Sine	Cosine	Tangent
SOH	CAH	TOA
$\sin A = \frac{Opp.}{Hyp.}$	$\cos A = \frac{Adj.}{Hyp.}$	$\tan A = \frac{Opp.}{Adj.}$



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



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

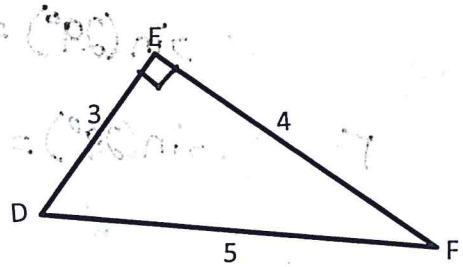


$\tan \angle A = \frac{z}{y}$

$\sin \angle B = \frac{5}{13}$

$\cos \angle B = \frac{12}{13}$

$\tan \angle B = \frac{5}{12}$



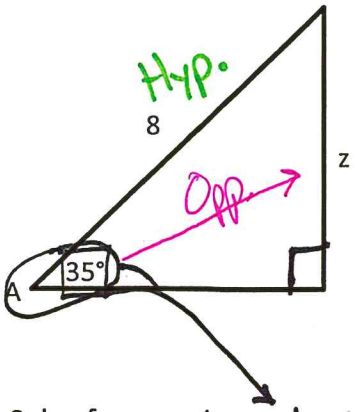
$\sin \angle D = \frac{4}{5}$

$\cos \angle F = \frac{4}{5}$

$\tan \angle D = \frac{4}{3}$

Missing Side Lengths

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



$\sin = \frac{O}{H}$

Sine; we have an opposite side and the hypotenuse.

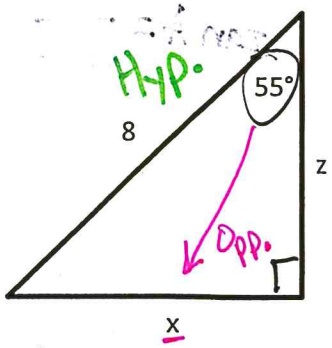
In order to solve for a missing side, you need to know an:

angle measure + 1 side length

Solve for z: $\sin A = \frac{z}{8} \rightarrow 8 \cdot \sin(35°) = \frac{z}{8} \cdot 8$

$8 \cdot \sin(35°) = z = 4.59$

plug into calc.

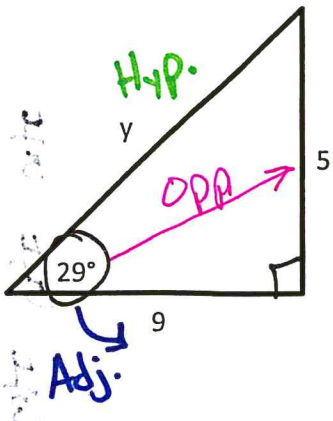


$S = \frac{O}{H}$

Solve for x:

$8 \cdot \sin(55°) = \frac{x}{8} \cdot 8$

$x = 6.55$



Solve for y:

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

$\frac{y \cdot \sin(29°)}{\sin(29°)} = \frac{5}{\sin(29°)}$

$y = 10.31$

$y = \frac{9}{\cos(29°)}$

$y = 10.29$