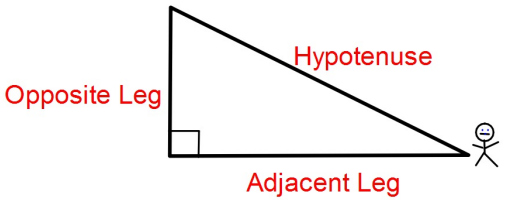
Section 11-7



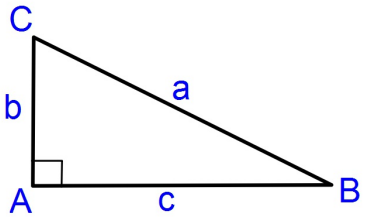
Opposite means "across from"

Adjacent means "next to"

△ABC is shown below

Angles are labeled with Capital Letters and sides are labeled with Lower Case Letters.

Sides and angles with the same variable should be opposite each other.



Trigonometry

Trigonometry is the study of triangles.

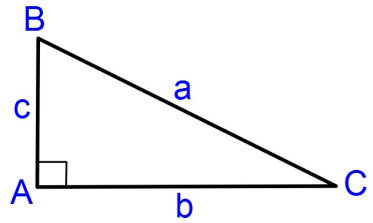
(The name comes from Greek trigonon "triangle" + metron "measure") .

Trigonometric Ratios:

The ratio of sides in a right triangle

Sine, Cosine, & Tangent

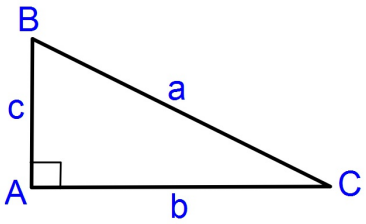
Sine



Sine of angle C → $\text{Sin}C = \frac{\text{Leg Opposite C}}{\text{Hypotenuse}}$

$\text{Sin}C = \frac{c}{a}$

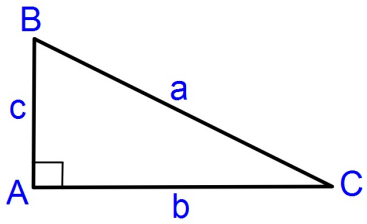
Cosine



Cosine of angle C → CosC = $\frac{\text{Leg Adjacent C}}{\text{Hypotenuse}}$

CosC = $\frac{b}{a}$

Tangent



Tangent of angle C → TanC = $\frac{\text{Leg Opposite C}}{\text{Leg Adjacent C}}$

TanC = $\frac{c}{b}$

Use a white board.

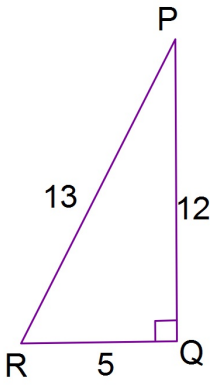
Find each trig ratio using right triangle PQR.

Sin R = $\frac{12}{13}$ Cos R = $\frac{5}{13}$

Tan R = $\frac{12}{5}$

Sin P = $\frac{5}{13}$ Cos P = $\frac{12}{13}$

Tan P = $\frac{5}{12}$

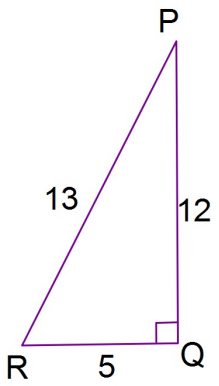


Why won't I ask you to find Sin, Cos, or Tan of the Right Angle?

Sin Q there is no opposite leg

Cos Q both legs are adjacent

Tan Q there is no opp leg and both legs are adj.



Remembering the trig ratios:

SOHCAHTOA

SOHCAHTOA

$$\text{Sin} = \frac{\text{Opp Leg}}{\text{Hyp}}$$

SOHCAHTOA

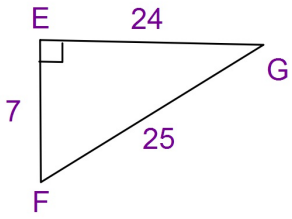
$$\text{Cos} = \frac{\text{Adj Leg}}{\text{Hyp}}$$

SOHCAHTOA

$$\text{Tan} = \frac{\text{Opp Leg}}{\text{Adj Leg}}$$

Use a white board

Find each trig ratio as a fraction.



Cos F = $\frac{7}{25}$

Tan F = $\frac{24}{7}$

TanG = $\frac{7}{24}$

Sin F = $\frac{24}{25}$

Cos G = $\frac{24}{25}$

Sin G = $\frac{7}{25}$