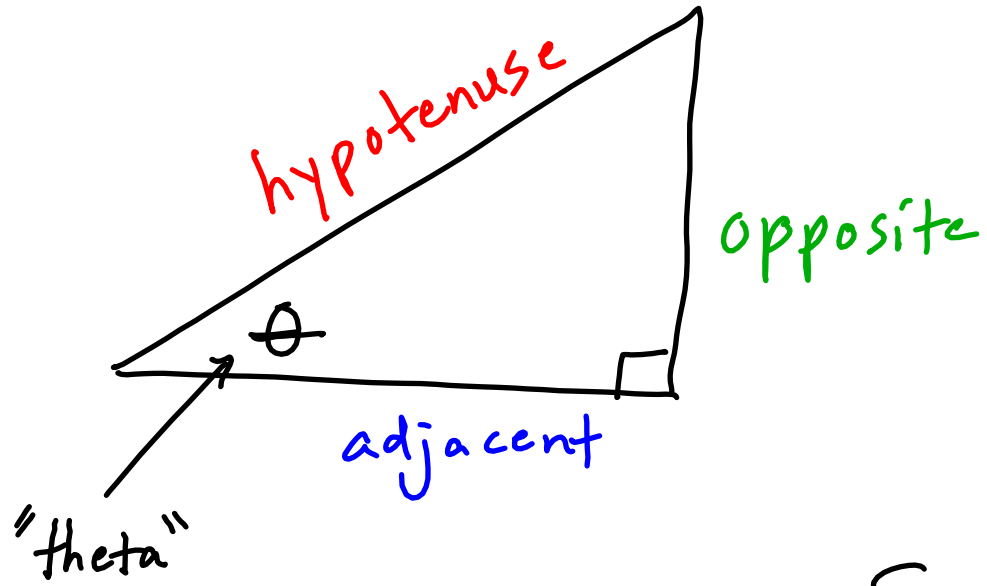


Trigonometry



"sine"
 $\sin \theta = \frac{\text{opp}}{\text{hyp}}$

"cosine"
 $\cos \theta = \frac{\text{adj}}{\text{hyp}}$

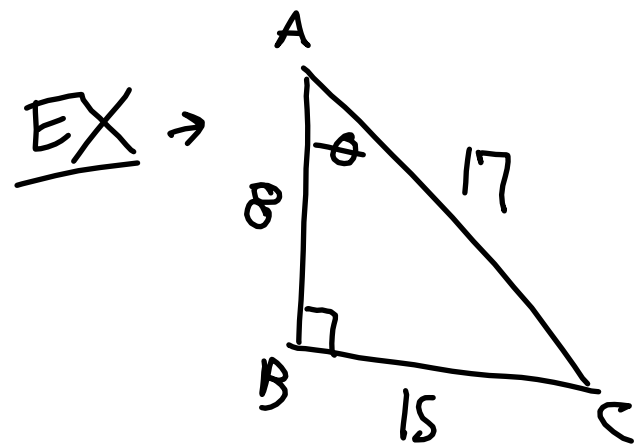
"tangent"
 $\tan \theta = \frac{\text{opp}}{\text{adj}}$

"cosecant"
 $\csc \theta = \frac{\text{hyp}}{\text{opp}}$

"secant"
 $\sec \theta = \frac{\text{hyp}}{\text{adj}}$

"cotangent"
 $\cot \theta = \frac{\text{adj}}{\text{opp}}$

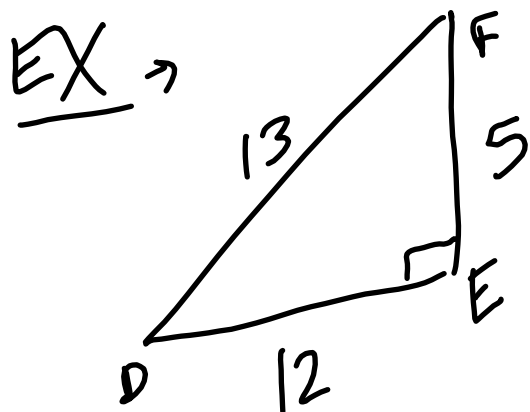
S O / H C A / H T O / A



$$\sin A = \frac{15}{17}$$

$$\cos A = \frac{8}{17}$$

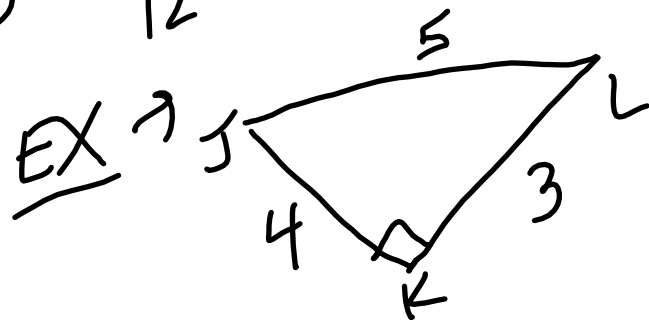
$$\tan A = \frac{15}{8}$$



$$\sin D = \frac{5}{13}$$

$$\cos D = \frac{12}{13}$$

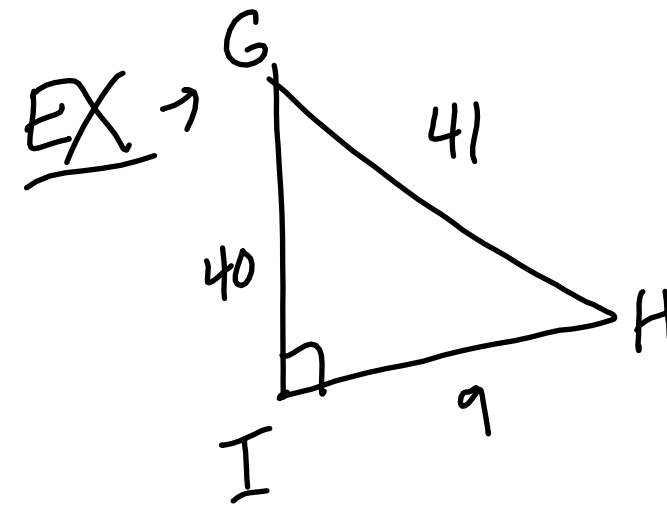
$$\tan D = \frac{5}{12}$$



$$\sin J = \frac{3}{5}$$

$$\cos J = \frac{4}{5}$$

$$\tan J = \frac{3}{4}$$



$$\sin G = \frac{9}{41}$$

$$\cos G = \frac{40}{41}$$

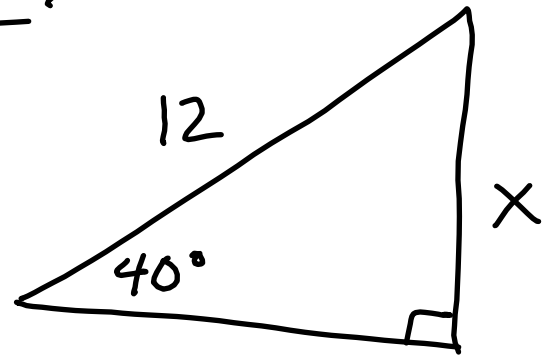
$$\tan G = \frac{9}{40}$$

- Angles have a fixed value for trig functions

EX $\rightarrow \sin 30^\circ = \frac{1}{2} \quad \frac{\text{opp}}{\text{hyp}} = \frac{1}{2}$

- To solve for a missing side, we will essentially be solving proportions

EX \rightarrow

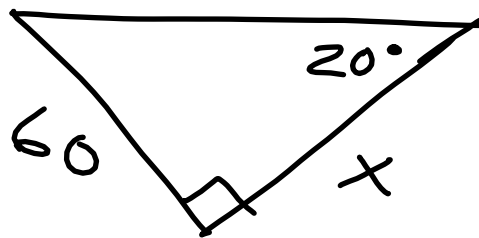


$$\sin 40^\circ = \frac{x}{12}$$

$$12 \cdot 0.643 = \frac{x}{12} \cdot 12$$

$$x = 7.716$$

EX \rightarrow

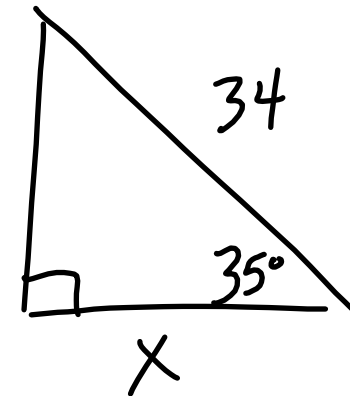


$$x \cdot \tan 20 = \frac{60}{x} \cdot x$$

$$\frac{(\cancel{\tan 20})x}{\cancel{\tan 20}} = \frac{60}{\tan 20}$$

$$x = \frac{60}{\tan 20} = 164.849$$

EX \rightarrow



$$\cos 35 = \frac{x}{34}$$

$$34 \cdot 0.819 = \frac{x}{34} \cdot 34$$

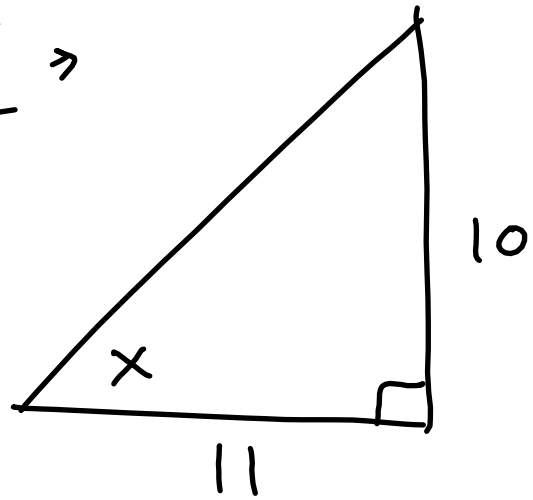
$$27.846 = x$$

HW: p. 510 → 11-21, 30-32, 40-45

- to solve for angle measures, use inverse trig functions

(EX \rightarrow \sin^{-1} , \cos^{-1} , \tan^{-1})

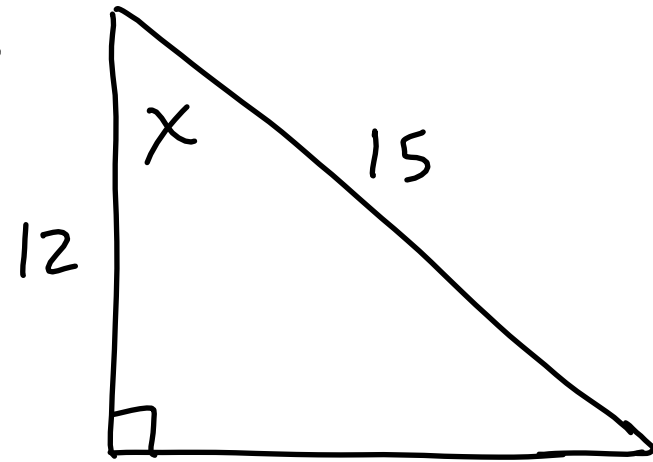
EX \rightarrow



$$x = \tan^{-1}\left(\frac{10}{11}\right)$$

$$x = 42.274^\circ$$

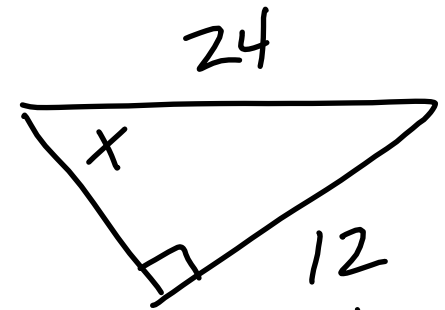
EX \rightarrow



$$x = \cos^{-1}\left(\frac{12}{15}\right)$$

$$x = 36.870^\circ$$

EX \rightarrow



$$x = \sin^{-1}\left(\frac{12}{24}\right)$$

$$x = 30^\circ$$

HW: p. 510 → 11-27, 30-32, 40-45