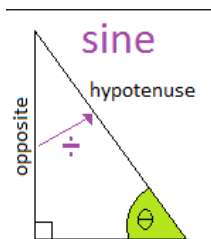


3.2 Sine and Cosine Ratios

February 28, 2017 10:18 AM



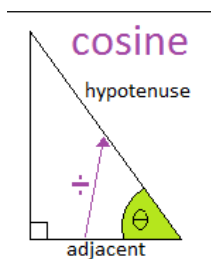
$$\sin \theta = \frac{\text{Opposite}}{\text{Hypotenuse}}$$

Soh
Cah
Toa

$$\sin \theta = \frac{\text{Opposite}}{\text{Hypotenuse}}$$

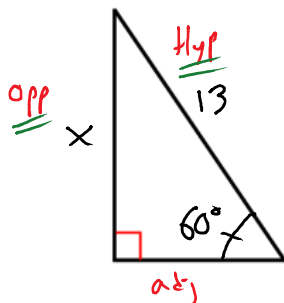
$$\cos \theta = \frac{\text{Adjacent}}{\text{Hypotenuse}}$$

$$\tan \theta = \frac{\text{Opposite}}{\text{Adjacent}}$$



$$\cos \theta = \frac{\text{adjacent}}{\text{Hypotenuse}}$$

Examples: Find x

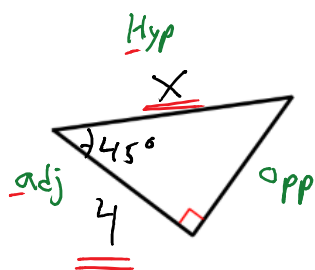


S O H

$$13 \times [\sin 60] = \frac{x}{13} \times 13$$

$$13 \sin 60 = x$$

$$\underline{\underline{11.3 = x}}$$



C A H

$$x \cdot [\cos 45] = \frac{4}{x} \times x$$

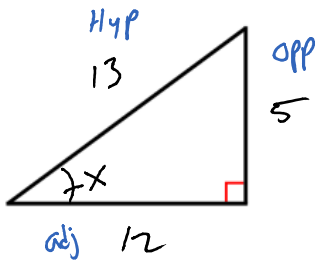
$$\frac{x \cos 45}{\cos 45} = \frac{4}{\cos 45}$$

$$x = \underline{\underline{4}}$$

$$\cos 45$$

$$\underline{\underline{x = 5.66}}$$

Find x using $\cos^{-1}$, $\sin^{-1}$ and $\tan^{-1}$



$$\tan x = \frac{\text{opp}}{\text{adj}}$$

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

$$x = \tan^{-1}\left[\frac{5}{12}\right]$$

$$\underline{\underline{x = 22.6^\circ}}$$

$$\cos x = \frac{\text{adj}}{\text{hyp}}$$

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

$$x = \cos^{-1}\left[\frac{12}{13}\right]$$

$$\underline{\underline{x = 22.6^\circ}}$$

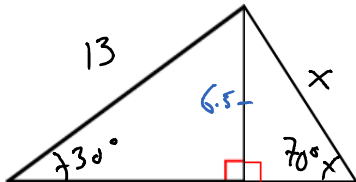
$$\sin x = \frac{\text{opp}}{\text{hyp}}$$

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

$$x = \sin^{-1}\left[\frac{5}{13}\right]$$

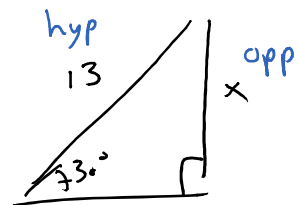
$$\underline{\underline{x = 22.6^\circ}}$$

Find x



⇒ break this
up into
two triangles

Solve this

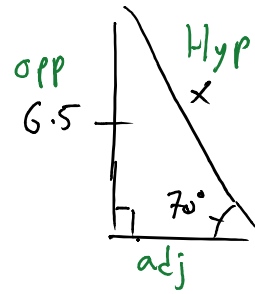


$$\sin 30 = \frac{x}{13}$$

$$13 \sin 30 = x$$

$$\underline{\underline{6.5 = x}}$$

$\Rightarrow$ Triangle #2



$$\sin 70 = \frac{6.5}{x}$$

$$\frac{x \sin 70}{\sin 70} = \frac{6.5}{\sin 70}$$

$$x = \frac{6.5}{\sin 70}$$

$$\underline{\underline{x = 6.9}}$$

Homework Pg: 120 CH 3.2

Q: 1-13 odd