Entry #: 5

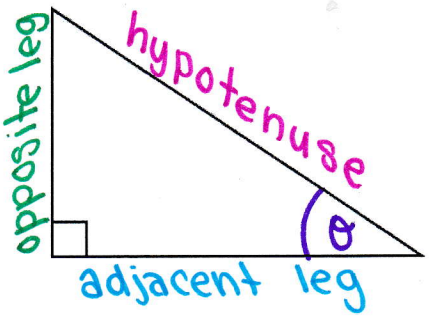
INVERSE TRIGONOMETRIC FUNCTIONS

WHAT ARE Inverse Trigonometric FUNCTIONS?

Inverse trigonometric functions can be used to find missing angle measures of right triangles.

$y = \cos(\theta)$	$\longleftrightarrow$	$\arccos(y) = \theta$ $\cos^{-1}(y) = \theta$
$y = \sin(\theta)$	$\longleftrightarrow$	$\arcsin(y) = \theta$ $\sin^{-1}(y) = \theta$
$y = \tan(\theta)$	$\longleftrightarrow$	$\arctan(y) = \theta$ $\tan^{-1}(y) = \theta$

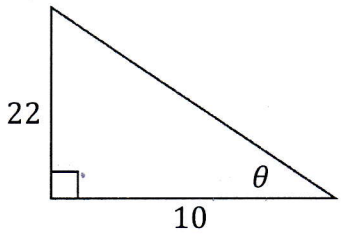
RATIOS OF Inverse Trigonometric FUNCTIONS



Original	Inverse
$\sin(\theta) = \frac{\text{opposite}}{\text{hypotenuse}}$	$\sin^{-1}\left(\frac{\text{opposite}}{\text{hypotenuse}}\right) = \theta$
$\cos(\theta) = \frac{\text{adjacent}}{\text{hypotenuse}}$	$\cos^{-1}\left(\frac{\text{adjacent}}{\text{hypotenuse}}\right) = \theta$
$\tan(\theta) = \frac{\text{opposite}}{\text{adjacent}}$	$\tan^{-1}\left(\frac{\text{opposite}}{\text{adjacent}}\right) = \theta$

SOLVING FOR Missing Angle Measures

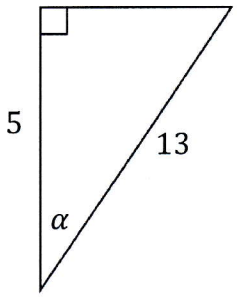
1. Solve for θ. Round your answer to the nearest degree.



$\tan^{-1}\left(\frac{22}{10}\right) = \theta$

$\theta \approx 66^\circ$

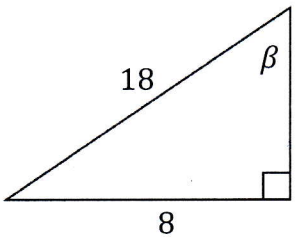
2. Solve for α. Round your answer to the nearest degree.



$\cos^{-1}\left(\frac{5}{13}\right) = \alpha$

$\alpha \approx 67^\circ$

3. Solve for β. Round your answer to the nearest degree.



$\sin^{-1}\left(\frac{8}{18}\right) = \beta$

$\beta \approx 26^\circ$