

Mathematics 1613: Trigonometry Quiz #9**Problem 28:** What does it mean for two functions to be inverse to each other?

Informally: two functions are inverses if they "undo" each other

Formally: f and g are inverses if $(f \circ g)(x) = x$
 $(g \circ f)(x) = x$

Problem 29: What are the "quadrants of output" for each of the following inverse trigonometric functions:

Function	Quadrants of Output
$\sin^{-1}(x)$	QI, QIV
$\cos^{-1}(x)$	QI, QII
$\tan^{-1}(x)$	QI, QIV

Problem 30: Find the following inverse trigonometric values (be mindful of the quadrants of output!):

$$\sin^{-1}\left(\frac{1}{2}\right) = \frac{\pi}{6}$$

$$\sin^{-1}\left(-\frac{1}{2}\right) = -\frac{\pi}{6}$$

$$\cos^{-1}\left(\frac{\sqrt{2}}{2}\right) = \frac{\pi}{4}$$

$$\cos^{-1}\left(-\frac{\sqrt{2}}{2}\right) = \frac{3\pi}{4}$$

$$\tan^{-1}(\sqrt{3}) = \frac{\pi}{3}$$

$$\tan^{-1}(-\sqrt{3}) = -\frac{\pi}{3}$$