C7L1 Notes
The Inverse Sine, Cosine, and Tangent Functions

$y = \arcsin x$ IFF $\sin y = x$ D: $-1 \le x \le 1$ R: $\frac{-\pi}{2} \le y \le \frac{\pi}{2}$

$y = \arccos x$ IFF $\cos y = x$ D: $-1 \le x \le 1$ R: $0 \le y \le \pi$

$y = \arctan x$ IFF $\tan y = x$ D: $-\infty < x < \infty$ R: $\frac{-\pi}{2} < y < \frac{\pi}{2}$

Properties of Inverse Functions

If $-1 \le x \le 1$

then $\sin(\arcsin x) = x$

If $\frac{-\pi}{2} \le y \le \frac{\pi}{2}$

then $\arcsin(\sin y) = y$

If $-1 \le x \le 1$

then $\cos(\arccos x) = x$

If $0 \le y \le \pi$

then $\arccos(\cos y) = y$

If $-\infty < x < \infty$

then $\tan(\arctan x) = x$

If $\frac{-\pi}{2} < y < \frac{\pi}{2}$

then $\arctan(\tan y) = y$

$\arcsin x = \sin^{-1} x$	$\arccos x = \cos^{-1} x$	$\arctan x = \tan^{-1} x$