7.5 Inverse Trigonometric Functions II

OBJECTIVE 1: Evaluating Composite Functions Involving Inverse Trigonometric Functions of the Form $f \circ f^{-1}$ and $f^{-1} \circ f$

Cancellation Equations for the Restricted Sine Function and its Inverse

$\sin\left(\sin^{-1} x\right) = x$ for all *x* in the interval $[-1,1]$

$\sin^{-1}\left(\sin\theta\right) = \theta$ for all θ in the interval $\left[-\frac{\pi}{2}, \frac{\pi}{2}\right]$.

Cancellation Equations for the Restricted Cosine Function and its Inverse

$\cos\left(\cos^{-1} x\right) = x$ for all *x* in the interval $[-1,1]$

$\cos^{-1}\left(\cos\theta\right) = \theta$ for all θ in the interval $[0,\pi]$.

Cancellation Equations for the Restricted Tangent Function and its Inverse

$\tan\left(\tan^{-1} x\right) = x$ for all *x* in the interval $(-\infty,\infty)$.

$\tan^{-1}\left(\tan\theta\right) = \theta$ for all θ in the interval $\left(-\frac{\pi}{2}, \frac{\pi}{2}\right)$.

Do not get into the habit of using a calculator to evaluate the composition of trigonometric expressions as it is possible to get false results.

OBJECTIVE 2: Evaluating Composite Functions Involving Inverse Trigonometric Functions of the Form $f \circ g^{-1}$ and $f^{-1} \circ g$