Reference Sheet for evaluating Inverse Trigonometric Functions

\[ y = \sin^{-1} x \quad \iff \quad \sin y = x \quad \text{where } y \text{ is an “angle” in } \left[ -\frac{\pi}{2}, \frac{\pi}{2} \right]; \quad x \text{ is a number in } [-1, 1] \]

\[ y = \cos^{-1} x \quad \iff \quad \cos y = x \quad \text{where } y \text{ is an “angle” in } [0, \pi]; \quad x \text{ is a number in } [-1, 1] \]

\[ y = \tan^{-1} x \quad \iff \quad \tan y = x \quad \text{where } y \text{ is an “angle” in } \left( -\frac{\pi}{2}, \frac{\pi}{2} \right); \quad x \text{ is a number in } (-\infty, \infty) \]

\[ y = \csc^{-1} x \quad \iff \quad \csc y = x \quad \text{where } y \text{ is an “angle” in } \left[ -\frac{\pi}{2}, \frac{\pi}{2} \right] \text{ and } y \neq 0; \]
\[ x \text{ is a number such that } |x| > 1 \]

\[ y = \sec^{-1} x \quad \iff \quad \sec y = x \quad \text{where } y \text{ is an “angle” in } [0, \pi] \text{ and } y \neq \frac{\pi}{2}; \]
\[ x \text{ is a number such that } |x| > 1 \]

\[ y = \cot^{-1} x \quad \iff \quad \cot y = x \quad \text{where } y \text{ is an “angle” in } (0, \pi); \quad x \text{ is a number in } (-\infty, \infty) \]