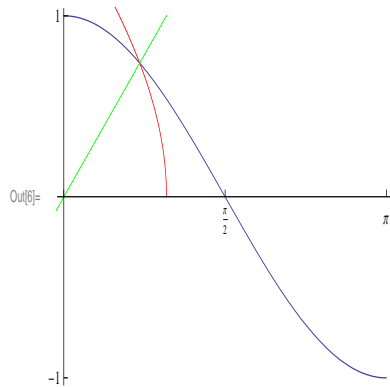


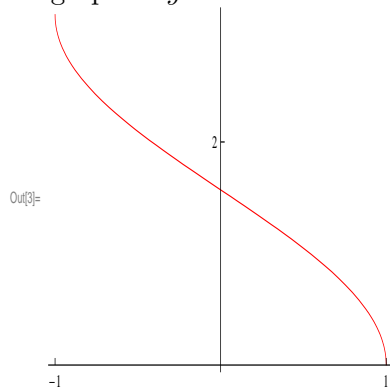
1-1 on this interval hence invertible. The **inverse cosine function** \cos^{-1} or arccos is defined as:

$$y = \cos^{-1} x \text{ iff } \cos y = x \text{ and } 0 \leq y \leq \pi$$

So $\cos^{-1} x$ has domain $[-1, 1]$ and range $[0, \pi]$. The below graph shows the process of reflecting the graph of $y = \cos x$ about the $y = x$ line.



so the graph of $y = \arccos x$ is



Example Evaluate $\arccos\left(\frac{-\sqrt{2}}{2}\right)$

We need to find the angle $0 \leq \theta \leq \pi$ where $\cos \theta = \frac{-\sqrt{2}}{2}$. Since cosine of our angle is negative we expect our angle to be in the 2nd quadrant hence $\theta = 3\pi/4$ or $\arccos\left(\frac{-\sqrt{2}}{2}\right) = 3\pi/4$.

Example Find the inverse of $y = \tan x$. As in the cases of sine and cosine we need to restrict the domain of tangent to find its inverse. And we will restrict the domain of $\tan x$ to the interval $(-\pi/2, \pi/2)$ where it is 1-1. Range of $\tan x$ on this domain is all \mathfrak{R} . The inverse of tangent function \tan^{-1} or arctan is defined just like in the cases of sine and cosine. Domain