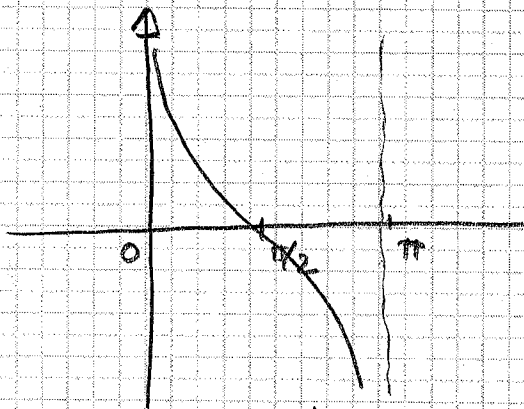
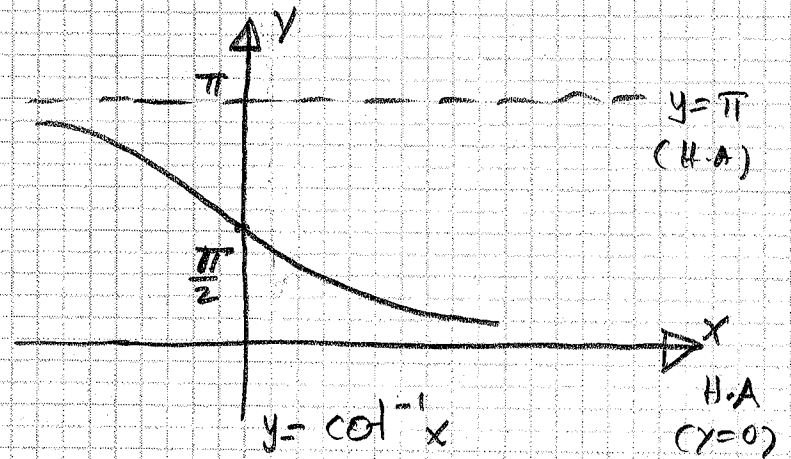


THE INVERSE COTANGENT FUNCTION



$y = \cot x$
 restricted to $(0, \pi)$
 Range = $(-\infty, \infty)$



$y = \cot^{-1} x$
 Domain = $(-\infty, +\infty)$
 Range = $(0, \pi)$

$$\cot^{-1}(\cot x) = x$$

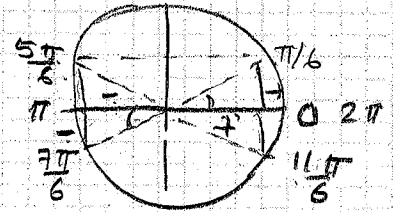
$$\text{if } 0 < x < \pi$$

$$\cot(\cot^{-1} x) = x$$

x is any real number

Ex: Find $\cot^{-1}(\cot \pi/6) = \pi/6$? Yes.

Ex: Find $\cot^{-1}(\cot 7\pi/6) = 7\pi/6$? No.



$$\cot(7\pi/6) = \cot(\pi/6)$$

$$\cot^{-1}(\cot(7\pi/6)) = \cot^{-1}(\cot(\pi/6)) = \pi/6$$

Ex: Find $\cot^{-1}(\cot(11\pi/6)) = \cot^{-1}(\cot(5\pi/6)) = 5\pi/6$