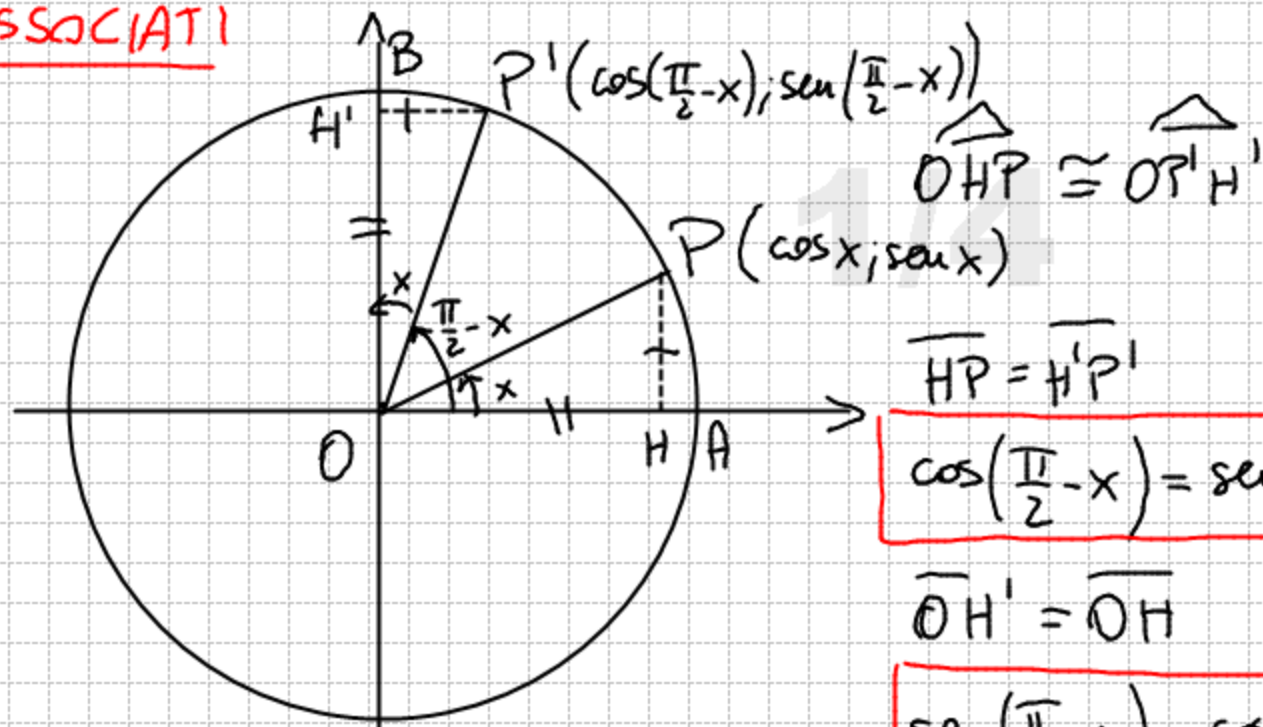


# ANGOLI ASSOCIATI

$$\frac{\pi}{2} - x; \frac{\pi}{2} + x$$



$$\widehat{OHP} \cong \widehat{OP'H'}$$

$$\overline{HP} = \overline{H'P'}$$

$$\cos\left(\frac{\pi}{2} - x\right) = \text{sen } x$$

$$\overline{OH'} = \overline{OH}$$

$$\text{sen}\left(\frac{\pi}{2} - x\right) = \cos x$$

$$\text{tg}\left(\frac{\pi}{2} - x\right) = \frac{\text{sen}\left(\frac{\pi}{2} - x\right)}{\cos\left(\frac{\pi}{2} - x\right)} = \frac{\cos x}{\text{sen } x} = \text{ctg } x$$

$$\text{Tg}\left(\frac{\pi}{2} - x\right) = \text{ctg } x$$

$$\text{ctg}\left(\frac{\pi}{2} - x\right) = \frac{\cos\left(\frac{\pi}{2} - x\right)}{\text{sen}\left(\frac{\pi}{2} - x\right)} = \frac{\text{sen } x}{\cos x} = \text{tg } x$$

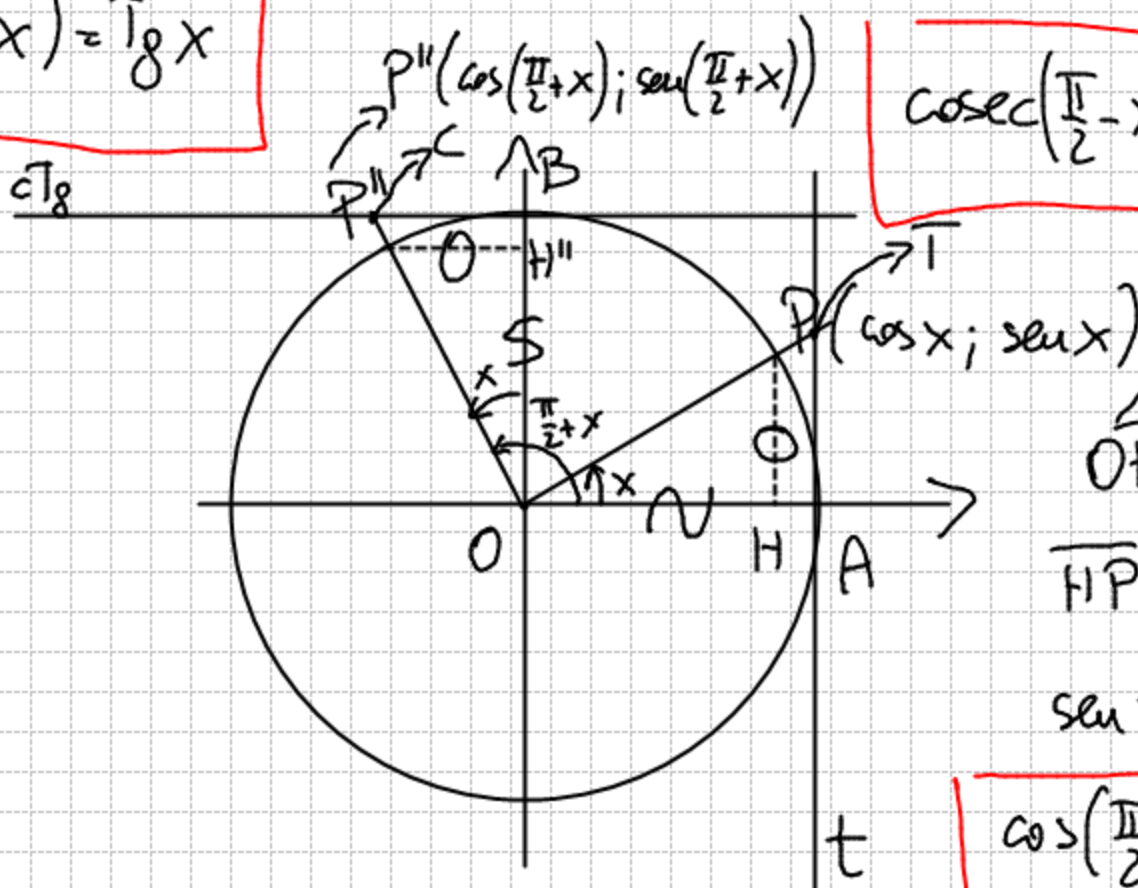
$$\text{ctg}\left(\frac{\pi}{2} - x\right) = \text{tg } x$$

$$\text{sec}\left(\frac{\pi}{2} - x\right) = \frac{1}{\cos\left(\frac{\pi}{2} - x\right)} = \frac{1}{\text{sen } x} = \text{cosec } x$$

$$\text{Sec}\left(\frac{\pi}{2} - x\right) = \text{cosec } x$$

$$\text{cosec}\left(\frac{\pi}{2} - x\right) = \frac{1}{\text{sen}\left(\frac{\pi}{2} - x\right)} = \frac{1}{\cos x} = \text{sec } x$$

$$\text{cosec}\left(\frac{\pi}{2} - x\right) = \text{sec } x$$



$$\widehat{OHP} \cong \widehat{OH''P''}$$

$$\overline{HP} = -\overline{P''H''}$$

$$\text{sen } x = -\cos\left(\frac{\pi}{2} + x\right)$$

$$\cos\left(\frac{\pi}{2} + x\right) = -\text{sen } x$$

$$\overline{OH} = \overline{OH''}$$

$$\cos x = \text{sen}\left(\frac{\pi}{2} + x\right)$$

$$\text{sen}\left(\frac{\pi}{2} + x\right) = \cos x$$

$$\text{tg}\left(\frac{\pi}{2} + x\right) = \frac{\text{sen}\left(\frac{\pi}{2} + x\right)}{\cos\left(\frac{\pi}{2} + x\right)} = -\frac{\cos x}{\text{sen } x}$$

$$\text{Tg}\left(\frac{\pi}{2} + x\right) = -\text{ctg } x$$

$$\text{sec}\left(\frac{\pi}{2} + x\right) = \frac{1}{\cos\left(\frac{\pi}{2} + x\right)} = -\frac{1}{\text{sen } x} = -\text{cosec } x$$

$$\text{sec}\left(\frac{\pi}{2} + x\right) = -\text{cosec } x$$

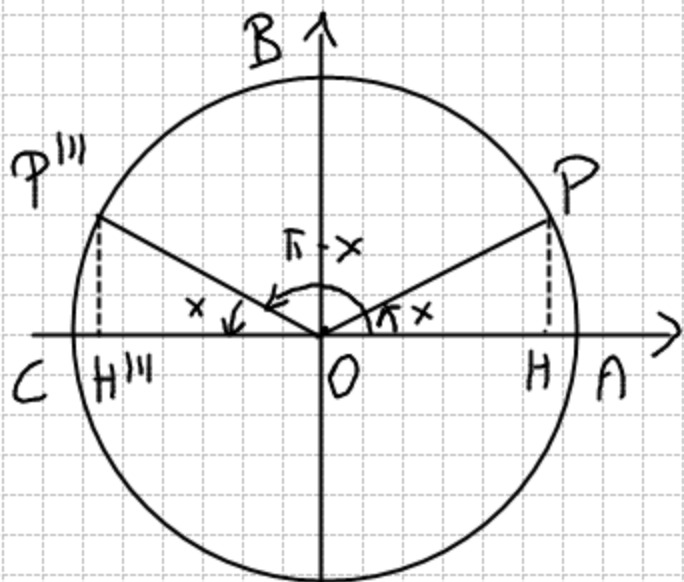
$$\text{cosec}\left(\frac{\pi}{2} + x\right) = \frac{1}{\text{sen}\left(\frac{\pi}{2} + x\right)} = \frac{1}{\cos x} = \text{sec } x$$

$$\text{cosec}\left(\frac{\pi}{2} + x\right) = \text{sec } x$$

$$\text{ctg}\left(\frac{\pi}{2} + x\right) = \frac{\cos\left(\frac{\pi}{2} + x\right)}{\text{sen}\left(\frac{\pi}{2} + x\right)} = -\frac{\text{sen } x}{\cos x} = -\text{tg } x$$

$$\text{ctg}\left(\frac{\pi}{2} + x\right) = -\text{tg } x$$

$\pi - x, \pi + x$



$$\widehat{OHP} \cong \widehat{OH'''P'''}$$

$$\overline{HP} = \overline{H'''P'''}$$

$$\text{sen}(\pi - x) = \text{sen } x$$

$$\overline{OH} = -\overline{OH'''}$$

$$\text{cos}(\pi - x) = -\text{cos } x$$

$$\text{tg}(\pi - x) = \frac{\text{sen}(\pi - x)}{\text{cos}(\pi - x)} = \frac{\text{sen } x}{-\text{cos } x} = -\text{tg } x$$

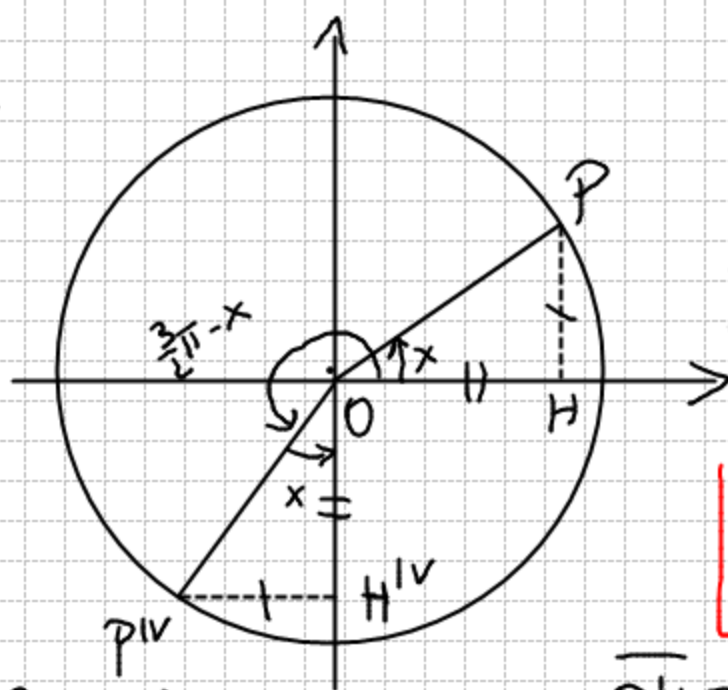
$$\text{tg}(\pi - x) = -\text{tg } x$$

$$\text{ctg}(\pi - x) = -\text{ctg } x$$

$$\text{sec}(\pi - x) = -\text{sec } x$$

$$\text{cosec}(\pi - x) = \text{cosec } x$$

$$\frac{3}{2}\pi - x; \frac{3}{2}\pi + x$$



$$\widehat{OHP} \cong \widehat{OP^IVH^IV}$$

$$\overline{HP} = -\overline{P^IVH}$$

$$\text{sen } x = -\cos\left(\frac{3}{2}\pi - x\right)$$

$$\cos\left(\frac{3}{2}\pi - x\right) = -\text{sen } x$$

$$\text{Tg}\left(\frac{3}{2}\pi - x\right) = \frac{\text{sen}\left(\frac{3}{2}\pi - x\right)}{\cos\left(\frac{3}{2}\pi - x\right)} = \frac{-\cos x}{-\text{sen } x} = \text{ctg } x$$

$$\overline{OH} = -\overline{H^IVO}$$

$$\cos x = -\text{sen}\left(\frac{3}{2}\pi - x\right)$$

$$\text{sen}\left(\frac{3}{2}\pi - x\right) = -\cos x$$

$$\sec\left(\frac{3}{2}\pi - x\right) = \frac{1}{\cos\left(\frac{3}{2}\pi - x\right)} = -\frac{1}{\text{sen } x} = -\text{cosec } x$$

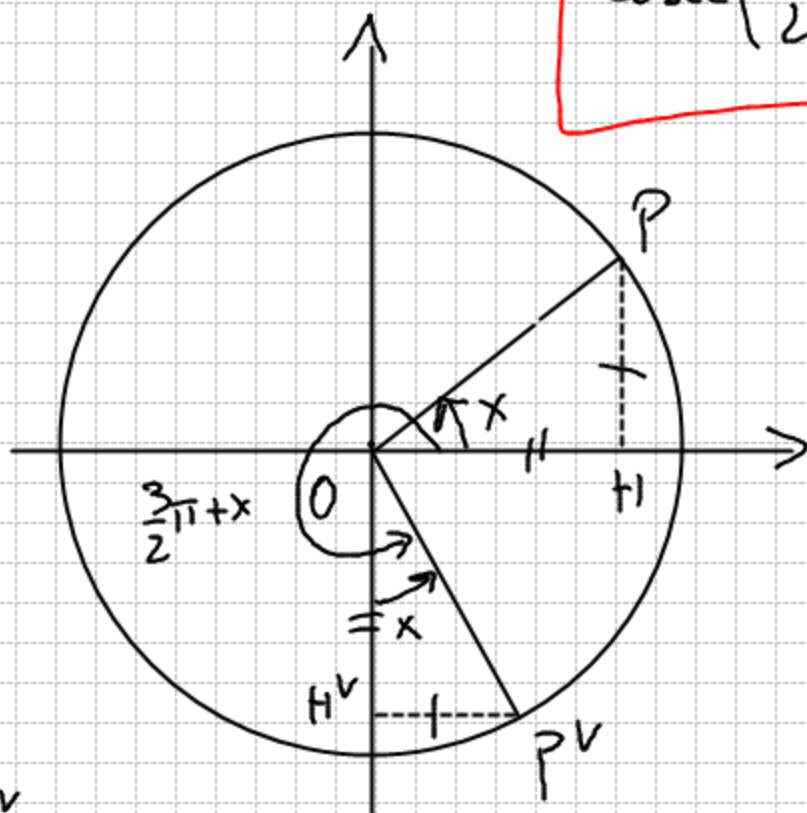
$$\sec\left(\frac{3}{2}\pi - x\right) = -\text{cosec } x$$

$$\text{ctg}\left(\frac{3}{2}\pi - x\right) = \frac{\cos\left(\frac{3}{2}\pi - x\right)}{\text{sen}\left(\frac{3}{2}\pi - x\right)} = \frac{-\text{sen } x}{-\cos x} = \text{Tg } x$$

$$\text{cosec}\left(\frac{3}{2}\pi - x\right) = \frac{1}{\text{sen}\left(\frac{3}{2}\pi - x\right)} = -\frac{1}{\cos x} = -\sec x$$

$$\text{cosec}\left(\frac{3}{2}\pi - x\right) = -\sec x$$

$$\text{ctg}\left(\frac{3}{2}\pi - x\right) = \text{Tg } x$$



$$\widehat{OHP} \cong \widehat{OH^IVP^IV}$$

$$\overline{HP} = \overline{H^IVP^IV}$$

$$\text{sen } x = \cos\left(\frac{3}{2}\pi + x\right)$$

$$\cos\left(\frac{3}{2}\pi + x\right) = \text{sen } x$$

$$\overline{OH} = -\overline{OH^IV}$$

$$\cos x = -\text{sen}\left(\frac{3}{2}\pi + x\right)$$

$$\text{sen}\left(\frac{3}{2}\pi + x\right) = -\cos x$$

$$\text{Tg}\left(\frac{3}{2}\pi + x\right) = \frac{\text{sen}\left(\frac{3}{2}\pi + x\right)}{\cos\left(\frac{3}{2}\pi + x\right)} = \frac{-\cos x}{\text{sen } x} = -\text{ctg } x$$

$$\text{Tg}\left(\frac{3}{2}\pi + x\right) = -\text{ctg } x$$

$$\text{ctg}\left(\frac{3}{2}\pi + x\right) = \frac{\cos\left(\frac{3}{2}\pi + x\right)}{\text{sen}\left(\frac{3}{2}\pi + x\right)} = \frac{\text{sen } x}{-\cos x} = -\text{Tg } x$$

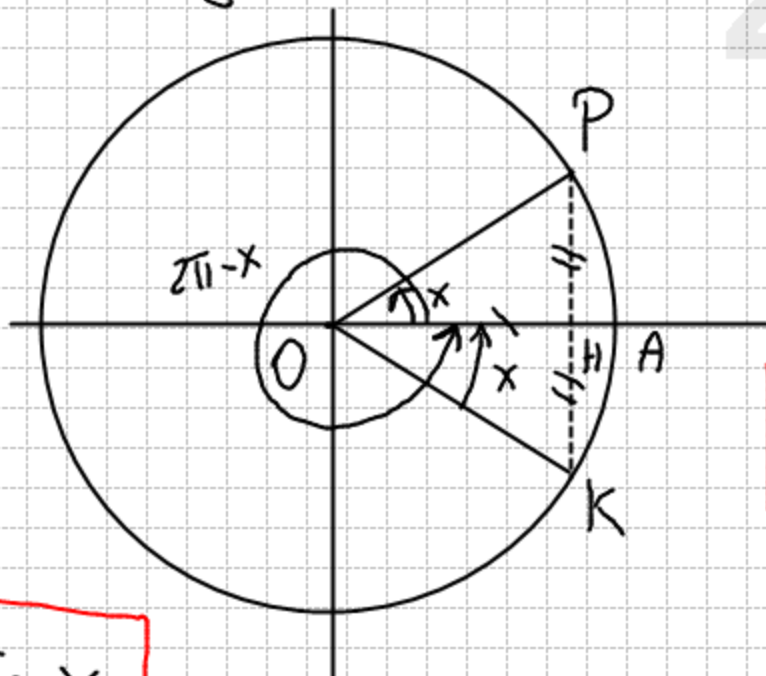
$$\sec\left(\frac{3}{2}\pi + x\right) = \frac{1}{\cos\left(\frac{3}{2}\pi + x\right)} = \frac{1}{\text{sen } x} = \text{cosec } x$$

$$\sec\left(\frac{3}{2}\pi + x\right) = \text{cosec } x$$

$$\text{ctg}\left(\frac{3}{2}\pi + x\right) = -\text{Tg } x$$

$$\text{cosec}\left(\frac{3}{2}\pi + x\right) = -\sec x$$

$2\pi - x = -x$  è analogo di  $-x$



$$\widehat{OHP} \cong \widehat{OKH}$$

$$\overline{HP} = -\overline{KH}$$

$$\text{sen } x = -\text{sen}(2\pi - x)$$

$$\text{sen}(2\pi - x) = -\text{sen } x$$

$$\overline{OH} = \overline{OH}$$

$$\text{cos } x = \text{cos}(2\pi - x)$$

$$\text{cos}(2\pi - x) = \text{cos } x$$

$$\text{Tg}(2\pi - x) = -\text{Tg } x$$

$$\text{cTg}(2\pi - x) = -\text{cTg } x$$

$$\text{sec}(2\pi - x) = \text{sec } x$$

$$\text{cosec}(2\pi - x) = -\text{cosec } x$$