Projeto Mathematical Ramblings

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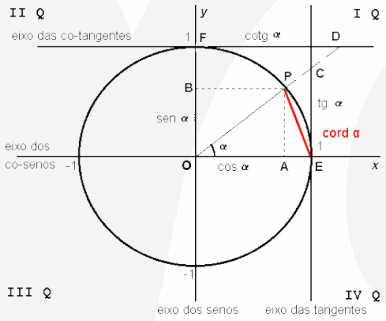
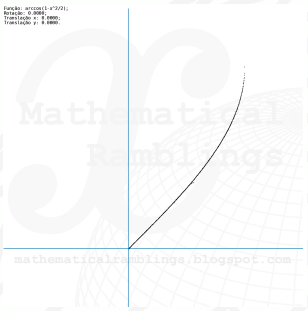
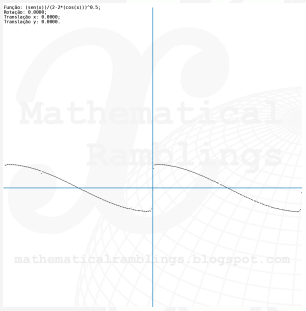
A inversa, a derivada, e a integral da função corda.



$$cord\ \alpha = \sqrt{2(1-\cos\alpha)}$$



Inversa: seja $arccord : [0,2] \to [0,\pi],\ x \mapsto arccord\ x$ $\boxed{arccord\ x = \arccos\left(1 - \frac{x^2}{2}\right)}$.



Derivada: $\boxed{(cord\ \alpha)' = \frac{\sin\alpha}{\sqrt{2-2\cos\alpha}}}$.

Observemos que, para $0 \leq \alpha \leq 2\pi$, $cord\ \alpha = 2\sin\frac{\alpha}{2}$.

Logo,

$$\boxed{\int cord\ \alpha\ d\alpha\ =\ -4\cos\frac{\beta}{2} + c,\ \alpha = 2k\pi + \beta,\ k \in \mathbb{Z}, 0 \leq \beta < 2\pi}.$$

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Última versão do documento (podem haver correções e/ou aprimoramentos):
"bit.ly/mathematicalramblings_public".

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