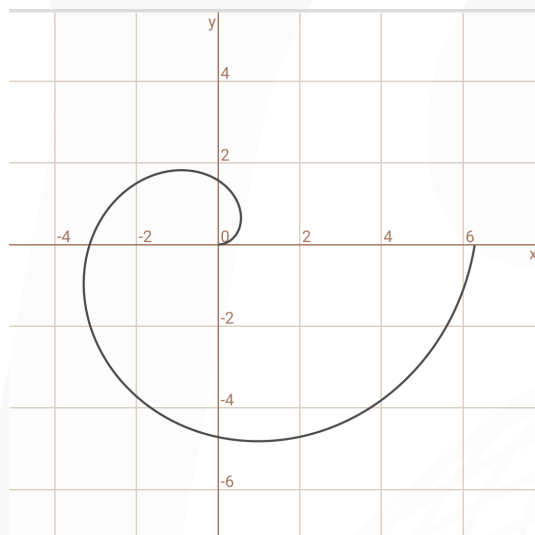


Comprimento da espiral de Arquimedes.



$$C = \int_0^{2\pi} \sqrt{(\cos \theta - \theta \sin \theta)^2 + (\sin \theta + \theta \cos \theta)^2} d\theta = \int_0^{2\pi} \sqrt{1 + \theta^2} d\theta$$

Seja $\theta = \tan \varphi$, $d\theta = \sec^2 \varphi d\varphi$.

$$C = \int_0^{\arctan 2\pi} \sec^3 \varphi d\varphi = \boxed{\frac{2\pi\sqrt{4\pi^2 + 1} + \log(2\pi + \sqrt{4\pi^2 + 1})}{2}}$$

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Sugestões, comunicar erros: "a.vandre.g@gmail.com".

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