S · T · Q · Q · S · S · D
L M M J V S D

Cálculo II

$a \cdot r = 2\cos\theta$

$\theta = \frac{\pi}{3}$

$$\frac{dy}{dx} = \frac{\frac{dr}{d\theta}\operatorname{sen}\theta + r\cos\theta}{\frac{dr}{d\theta}\cos\theta + r\operatorname{sen}\theta}$$

$$\frac{dr}{d\theta} = 2\operatorname{sen}\theta$$

$$\frac{dy}{dx} = \frac{(2\operatorname{sen}\theta)\operatorname{sen}\theta + r\cos\theta}{(2\operatorname{sen}\theta)\cos\theta + r\operatorname{sen}\theta}$$

$$\frac{dy}{dx} = \frac{2\operatorname{sen}^2\theta + r\cos\theta}{2\operatorname{sen}\theta\cos\theta + r\operatorname{sen}\theta} \qquad r = 2\cos\theta$$

$$\frac{dy}{dx} = \frac{2\operatorname{sen}^2\theta + 2\cos^2\theta}{\underbrace{2\operatorname{sen}\theta\cos\theta}_{0} - \underbrace{2\operatorname{sen}\theta\cos\theta}_{0}} = 0$$

$b = r = 1 + 2\cos\theta$

$\theta = \frac{\pi}{3}$

$x = (1 + 2\cos\theta) \cdot \cos\theta$

$y = (1 + 2\cos\theta) \cdot \operatorname{sen}\theta$

$\frac{dx}{d\theta} = (1 + 2\cos\theta)(-\operatorname{sen}\theta) + \cos\theta\,(-2\operatorname{sen}\theta)$

$\frac{dy}{d\theta} = (1 + 2\cos\theta) \cdot \cos\theta + \operatorname{sen}\theta\,(-2\operatorname{sen}\theta)$

$\frac{dy}{dx} = \frac{dy}{d\theta} \cdot \frac{d\theta}{dx} = \frac{(1+2\cos\theta)\cdot\cos\theta + \operatorname{sen}\theta\,(-2\operatorname{sen}\theta)}{(1+2\cos\theta)(-\operatorname{sen}\theta) + \cos\theta\,(-2\operatorname{sen}\theta)}$

QUANDO $\theta = \pi/3$

$\frac{dy}{dx} = \frac{1 + \sqrt{3}/2\,(-\sqrt{3})}{-\sqrt{3} - \sqrt{3}/2} = \frac{2 - 3}{-2\sqrt{3} - \sqrt{3}} = \frac{\sqrt{3}}{9}$

PARA $\theta = \frac{\pi}{3}$ A INCLINAÇÃO É $\frac{\sqrt{3}}{9}$ //