

Aula 22 - 16.4/7

Daniel Amorim Villela de Sales - 123.145

$$\begin{aligned} \cdot \int_C (y + e^{\sqrt{x}}) dx + (2x + \cos(y^2)) dy &= \iint_D \left( \frac{\partial}{\partial x} (2x + \cos(y^2)) - \frac{\partial}{\partial y} (y + e^{\sqrt{x}}) \right) dA \\ \int_C (y + e^{\sqrt{x}}) dx + (2x + \cos(y^2)) dy &= \iint_D dA \end{aligned}$$

· Região D

$$0 \leq x \leq 1 \quad ; \quad x^2 \leq y \leq \sqrt{x}$$

$$\therefore \iint_D dA = \int_0^1 \int_{x^2}^{\sqrt{x}} dx dy$$

$$\iint_D dA = \int_0^1 (\sqrt{x} - x^2) dx = \left[ \frac{2\sqrt{x^3}}{3} - \frac{x^3}{3} \right]_0^1 = \frac{2}{3} - \frac{1}{3} = \frac{1}{3}$$