- Coordenadas polares

$$\iint_R (2x-y)\, dA = \iint_R (2r\cdot\cos(\theta) - r\cdot sen(\theta))\, dA = \iint_R r^2(2\cdot\cos(\theta) - sen(\theta))\, dr\, d\theta$$

- Limites do retângulo

$$x=0 \quad ; \quad \theta = \pi/2 \quad ; \quad y=x \quad ;$$

$$x=y$$
$$r\cdot sen(\theta) = r\cdot\cos(\theta)$$
$$tg(\theta) = 1 \implies \theta = \pi/4$$

- $0 < r < 2$

$$\int_{\pi/4}^{\pi/2} \int_0^2 r^2(2\cdot\cos\theta - sen\theta)\, dr\, d\theta$$

$$\int_{\pi/4}^{\pi/2} \frac{8}{3}(2\cdot\cos(\theta) - sen(\theta))\, d\theta$$

- $$\frac{8}{3}(2\cdot sen\theta + \cos(\theta))\Big|_{\pi/4}^{\pi/2} = \frac{8}{3}\cdot\left[(2+0) - \left(\sqrt{2} + \frac{\sqrt{2}}{2}\right)\right] = \frac{32 - 24\sqrt{2}}{6}$$