

$$2) \iint (x^2 + y^2) dx dy$$

(5)

on polar $x = r \cos \theta, y = r \sin \theta \rightarrow (0, 2\pi)$
 on a " " " " " "

$$dx dy = r dr d\theta \rightarrow (0, 2\pi)$$

$$\iint (x^2 + y^2) dx dy = \iint r^3 dr d\theta \quad (0, 2\pi)$$

(5)

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$$= \int_{\frac{\pi}{2}}^{\frac{5\pi}{6}} \left[\int_0^3 r^3 dr \right] d\theta \rightarrow (0, 2\pi)$$

$\frac{\pi}{3}$

$$= \frac{\pi}{3} \left[\frac{\pi}{2} + \frac{\pi}{6} \right] d\theta \rightarrow (0, 2\pi)$$

$$= 20 \left(\frac{\pi}{2} + \frac{\pi}{6} - \frac{\pi}{3} \right) = \frac{20\pi}{3} \quad (0, 2\pi)$$