

Calculus III
Math 241-002
Fall 2025
Quiz 8

Name Solution

Use a double integral to find the area of the region D .

$$\iint_D dA = \int_0^{2\pi} \int_0^{\sqrt{\theta}} r \, dr \, d\theta$$

$$= \int_0^{2\pi} \left. \frac{r^2}{2} \right|_0^{\sqrt{\theta}} d\theta$$

$$= \int_0^{2\pi} \frac{\theta}{2} d\theta$$

$$= \left. \frac{\theta^2}{4} \right|_0^{2\pi}$$

$$= \frac{4\pi^2}{4}$$

$$= \pi^2$$

