

17.2

$$1. \int_0^{2\pi} \int_0^1 (1, 0, 1 - 2u \cos(\theta)) * (2u^2 \cos(\theta), 2u^2 \sin(\theta), u) du d\theta = \pi$$

$$3. \int_0^1 \int_0^1 -e^{y-1} dx dy = e^{-1} - 1$$

$$5. \int_0^{2\pi} (-\sin(\theta), \cos(\theta), 1) * (-\sin(\theta), \cos(\theta), 0) d\theta = 2\pi$$

$$9. \text{curl} F = \langle 0, 0, 0 \rangle, 0$$

$$11. \int_0^{2\pi} \int_0^1 (3, 0, -5) * (0, 0, r) dr d\theta = -45\pi$$

$$13. \text{curl}(F) = (-1, -1, -1) \quad r(u, v) = (u, v, v)$$

$$\int_0^3 \int_0^3 (-1, -1, -1)(0, -1, 1) du dv = 0$$