

17.1

$$1. \{(x, y) | x^2 + y^2 = 1\} = \{(r, \theta) | r = 1, 0 \leq \theta \leq 2\pi\}$$

$$\oint_C xy dx + y dy = \int_0^{2\pi} (1 - \sin(\theta)) \sin(\theta) \cos(\theta) d\theta = 0$$

$$\oint_C xy dx + y dy = \iint -x dA = \int_0^{2\pi} \int_0^1 -r^2 \cos(\theta) dr d\theta = 0$$

$$3. \int_0^1 \int_0^1 2x - 2y dy dx = 0$$

$$5. \int_0^{2\pi} \int_0^1 -r^3 (\cos(\theta))^2 dr d\theta = -\frac{\pi}{4}$$

$$7. \int_0^1 \int_x^{x^2} -2x dy dx = \frac{1}{6}$$

$$13. \int_0^2 \int_x^2 2dy dx + \int_0^2 \int_2^4 2dy dx + \int_0^2 \int_4^{6-x} 2dy dx + \int_0^6 y dy = 34$$