17.1

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

   $\oint_C xydx + ydy = \int_0^{2\pi}(1 - \sin(\theta))\sin(\theta)\cos(\theta) = 0$

   $\oint_C xydx + ydy = \iint -xdA = \int_0^{2\pi}\int_0^1 -r^2\cos(\theta)\,dr\,d\theta = 0$

3. $\int_0^1 \int_0^1 2x - 2ydy\,dx = 0$

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

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

9. $(-1)\left(\int_0^2 \int_0^x e^{x-y} - e^{x+y}dy\,dx + \int_2^4 \int_{x-2}^2 e^{x-y} - e^{x+y}dy\,dx\right)$

   $= \frac{e^6}{2} - \frac{e^4}{2} - \frac{5e^2}{2} + \frac{5}{2}$

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