1)

$$\int_C (x\,dy - y\,dx)$$

Green:

$$\iint_S \frac{\partial f_2}{\partial x} - \frac{\partial f_1}{\partial y}$$

$$(x, y) \to (a\cos\theta, a\sin\theta)$$

$$\int_0^{2\pi} (a\cos\theta \cdot \frac{dy}{d\theta}\,d\theta - a\sin\theta \cdot \frac{dx}{d\theta}\,d\theta)$$

$$= \int_0^{2\pi} (a^2\cos^2\theta + a^2\sin^2\theta)\,d\theta$$

$$= \int_0^{2\pi} a^2 \cdot d\theta = \boxed{2a^2\pi}$$