Int1:

$$\int_0^{2\pi} d\theta \ \frac{1}{1 + b\cos\theta + c\sin\theta} = 2\pi/\sqrt{1-(b^2+c^2)} \qquad \text{assuming} \quad b^2+c^2 < 1$$

$$\int_0^{2\pi} d\theta \ \frac{1}{A + B\cos\theta + C\sin\theta} = 2\pi / \sqrt{A^2-B^2-C^2} \quad \text{assuming } B^2+C^2 < A^2$$

$$\int_0^{2\pi} d\theta \ \ln(1 + b\cos\theta + c\sin\theta) = 2\pi \ln [(1 + \sqrt{1-b^2-c^2})/2] \quad \text{assuming } b^2+c^2 < 1$$

$$\int_0^{2\pi} d\theta \ \ln(A + B\cos\theta + C\sin\theta) = 2\pi \ln [(A + \sqrt{A^2-B^2-C^2})/2] \qquad \text{assuming } B^2+C^2 < A^2$$