Worksheet for Sections 14.2-14.3

1. For the integral below, reverse the order of integration, and then evaluate.

$$\int_1^9 \int_{\sqrt{y}}^3 \frac{e^{(x^2-2x)}}{x+1}\, dx\, dy$$

2. Find the area A of the region inside the cardioid $r = 1 + \sin\theta$ and outside the cardioid $r = 1 + \cos\theta$.

3. Find the surface area S of the portion of the parabolic sheet $z = \frac{1}{2}y^2$ cut out by the planes $y = x$, $y = 2\sqrt{2}$ and $x = 0$.