8.2 - Area, Surface of Revolution
Calculus II

1. If the infinite curve $y = e^{-7x}$, $x \geq 0$, is rotated about the x-axis, find the area of the resulting surface.

2. Set up the integral for the area of the surface obtained by rotating the given curve about the specified axis, then solve.

$xy = 5y^2 - 1, 1 \leq y \leq 4$, x-axis

3. Find the exact area of the surface obtained by rotating the curve about the x-axis.

$y = \cos(\frac{1}{8}x), 0 \leq x \leq 4\pi$

4. The given curve is rotated about the x-axis. Set up, but do not evaluate, an integral for the area of the resulting surface.

$x = \ln(6y + 1), 0 \leq y \leq 1$

a. Integrate with respect to x.

b. Integrate with respect to y.