Section 10.2: Additional Problems

1. Find the length of the arc of the curve $x = t^2$, $y = t^3$ on the interval $0 \le t \le 2$.

2. Find the surface area about the y-axis for $x = t^2$, $y = t^3$ on the interval $0 \le t \le 2$.

3. Find the length of the arc of the curve $x = t$, $y = \ln(\cos(t))$, on the interval $0 \le t \le \frac{\pi}{4}$.

4. Find the arc length of the curve $x = \ln(1 - t^2)$, $y = t$ on the interval $0 \le t \le 0.5$.

5. Find the area of the surface obtained by rotating the curve defined by $x(t) = 3t - t^3$, $y(t) = 3t^2$ on the interval $0 \le t \le 1$ about the y-axis.

6. Set up the integral that would find the area of the surface obtained by rotating the curve $x = 1 + 2y^2$ on the interval $1 \le y \le 2$ about x=1.

7. Set up the integral that would find the area of the surface obtained by rotating the curve $x = 1 + 2y^2$ on the interval $1 \le y \le 2$ about $y = -2$.