1) Sketch the curve $r = \cos(2\theta)$.

2) Sketch the equation $r = 1 + \sin(2\theta)$.

3) Sketch the curve $r = 2\sin(\theta) - 1$.

4) Find the area enclosed by one loop of the four-leaved rose $r = \cos(2\theta)$.

5) Convert the point $(2, \frac{\pi}{3})$ from polar to cartesian coordinates.

6) Write the integral of arc length for the following parametric functions on the interval $(0, 2\pi)$.
   6) $x = \cos(t); \ y = \sin(t)$
   7) $x = \frac{t^2}{2}; \ y = 4t$
   8) $x = 1; \ y = t^2$

7) Set up and evaluate (if possible) the integral of surface area for the following parametric equations on the interval $(0, 2\pi)$ about the x-axis.
   9) $x = t^2; \ y = \sin(t)$
   10) $x = t^3; \ y = t$