1. Find the area enclosed by the curve $x = t^2 - 2t$, $y = \sqrt{t}$ and the $y$-axis.

2. Find the exact length of the curve,
$$x = t \sin t, \quad y = t \cos t, \quad 0 \le t \le 1.$$

3. Find a polar equation for the curve represented by the given Cartesian equation.
$$(x^2 + y^2)^3 = 4x^2 y^2.$$

4. Find the slope of the tangent line to the given polar curve at the point specified by the value of $\theta$.
$$r = 1 + \cos \theta, \quad \theta = \frac{\pi}{3}.$$

5. Find the area of 4 leaves of the graph of $r = \sin 2\theta$.

Course Homework
  Jan 27, Mon. : **10.3** 15, 17, 21, 25, 56, 57. **10.4** 5, 7
  Jan 29, Wed. : **10.4** 9, 11, 17, 45, 47. **10.5** 5, 11, 15, 19 (sketch graphs only)
  Jan 31, Fri.   : **12.1** 13, 15, 31. **12.2** 17, 21, 23. **12.3** 1, 7, 23, 37