Honors Precalc
9.5 Parametric Equations

Graph the curve with the given parameters, then find a Rectangular equation that contains the parametrized curve.

1. $x = \cos t, \ y = \sin t, \quad 0 \le t \le \pi$

2. $x = \cos(\pi - t), \ y = \sin(\pi - t), \quad 0 \le t \le \pi$

3. $x = 2\cos t, \ y = 4\sin t, \quad 0 \le t \le \pi$

4. $x = -\sec t, \ y = \tan t, \quad -\frac{\pi}{2} \le t \le \frac{\pi}{2}$

5. $x = \sin t, \ y = \cos(2t), \quad -\infty \le t \le \infty$

6. $x = 3t, \ y = 9t^2, \quad -\infty \le t \le \infty$

7. $x = -\sqrt{t}, \ y = t, \quad t \ge 0$

<u>Find a parametrization for the curve.</u>

8. The line segment with endpoints $(-1, -3)$ and $(4,1)$

9. The lower half of the parabola $y^2 = x - 1$

10. Find parametrizations to model the motion of a particle that starts at (a,0) and traces $x^2 + y^2 = a^2$, as the particle moves counterclockwise one rotation.