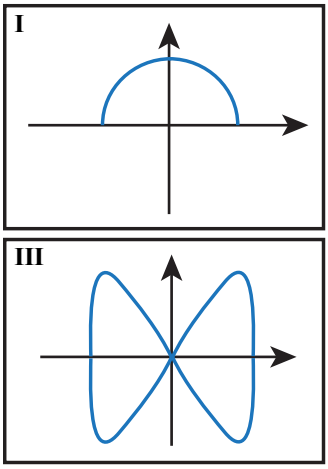
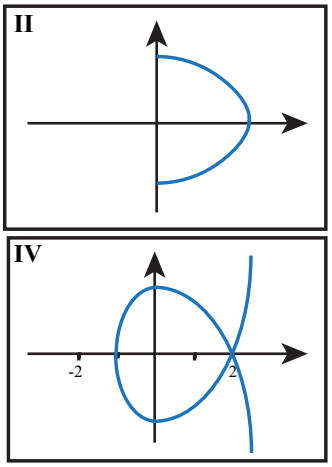
Parametric Equations Worksheet - Answer Key





1. Sketch the graph of $x = \cos(2t)$, $y = \sin(2t)$ for $0 \leq t \leq \frac{\pi}{2}$ in (**I**).

2. Sketch the graph of $x = \sin^2(t)$, $y = \cos(t)$ for $0 \leq t \leq \pi$ in (**II**).

3. Going from left to right, parametrize through the points $(-2, 3)$ and $(5, 1)$.
   $x = 7t - 2$, $y = -2t + 3$

4. Going from right to left, parametrize through the points $(-5, 6)$ and $(7, -3)$.
   $x = -12t + 7$, $y = 9t - 3$

5. Sketch the graph of $x = \sin(t)$, $y = \sin(2t)$ for $0 \leq t \leq 2\pi$ in (**III**).

6. Parametrize $y^2 + (x-2)^2 = 9$.
   $x = 2 + 3\cos(t)$, $y = 3\sin(t)$ for $0 \leq t \leq 2\pi$.

7. Parametrize $y - x^2 = 2x + 2$.:
   $x = t - 1$, $y = t^2 + 1$.

8. Sketch the graph of $x = t^2 - 1$, $y = t^3 - tu$ for $-2 \leq t \leq 2$ in (**IV**).

9. Find the equation of the line $x = 6 - 3t$, $y = 2t + 1$ in Cartesian coordinates.
   $y = -\frac{2}{3}x + 5$.

10. Does the point $(2b^2, b)$ lie on the graph of $x = a^2t^2 + b^2$, $y = at$?
    Yes.
