

1. Consider the parametric equations $x = \sqrt{t}$ and $y = 3 - t$.

(a) Create a table of x - and y -values using $t = 0, 1, 2, 3$, and 4 .

(b) Plot the points (x, y) generated in part (a), and sketch a graph of the parametric equations.

(c) Find the rectangular equation by eliminating the parameter. Sketch its graph. How do the graphs differ?

11. $x = 2(t + 1)$

$y = |t - 2|$

12. $x = |t - 1|$

$y = t + 2$

19. $x = e^{-t}$

$y = e^{3t}$

21. $x = t^3$

$y = 3 \ln t$

20. $x = e^{2t}$

$y = e^t$

22. $x = \ln 2t$

$y = 2t^2$

Comparing Plane Curves In Exercises 23–26, determine any differences among the curves of the parametric equations. Are the graphs the same? Are the orientations the same?

23. (a) $x = t$

$y = 2t + 1$

(c) $x = e^{-t}$

$y = 2e^{-t} + 1$

24. (a) $x = 2 \cos \theta$

$y = 2 \sin \theta$

(c) $x = \sqrt{t}$

$y = \sqrt{4 - t}$

25. (a) $x = \cos \theta$

$y = 2 \sin^2 \theta$

$0 < \theta < \pi$

26. (a) $x = t + 1, \quad y = t^3$

(b) $x = -t + 1, \quad y = (-t)^3$

(b) $x = \cos \theta$

$y = 2 \cos \theta + 1$

(d) $x = e^t$

$y = 2e^t + 1$

(b) $x = \sqrt{4t^2 - 1}/|t|$

$y = 1/t$

(d) $x = -\sqrt{4 - e^{2t}}$

$y = e^t$

(b) $x = \cos(-\theta)$

$y = 2 \sin^2(-\theta)$

$0 < \theta < \pi$

In Exercises 3–22, sketch the curve represented by the parametric equations (indicate the direction of the curve) by eliminating the parameter and adjusting the domain of the resulting rectangular equation.

3. $x = 3t - 3$

$y = 2t + 1$

5. $x = \frac{1}{4}t$

$y = t^2$

7. $x = t + 2$

$y = t^2$

9. $x = t + 1$

$y = t/(t + 1)$

4. $x = 3 - 2t$

$y = 2 + 3t$

6. $x = t$

$y = t^3$

8. $x = \sqrt{t}$

$y = 1 - t$

10. $x = t - 1$

$y = t/(t - 1)$