

Supplemental Exercises for Section 10.4

Find a parametrization for each of the following curves.

1. The straight line segment from $(-1, 3)$ to $(2, -1)$.
2. The straight line segment from $(2, -1)$ to $(-3, 4)$.
3. The curve $y = x^3 - 2$ from $(-1, -3)$ to $(2, 6)$.
4. The curve $y = x^3 - 2$ from $(2, 6)$ to $(-1, -3)$.
5. The curve $x = y^2$ from $(1, -1)$ to $(4, 2)$.
6. The curve $x = y^2$ from $(4, 2)$ to $(1, -1)$.
7. The bottom part of the curve $\frac{x^2}{4} + \frac{y^2}{9} = 1$ from $(2, 0)$ to $(-2, 0)$.
8. The bottom part of the curve $\frac{x^2}{4} + \frac{y^2}{9} = 1$ from $(-2, 0)$ to $(2, 0)$.
9. The left part of the curve $\frac{x^2}{4} + \frac{y^2}{9} = 1$ from $(0, -3)$ to $(0, 3)$.
10. The left part of the curve $\frac{x^2}{4} + \frac{y^2}{9} = 1$ from $(0, 3)$ to $(0, -3)$.

Selected Answers

Each problem has more than one correct answer. Below is one correct answer for each problem listed.

2. $x = -1 + 3t$ and $y = 3 - 4t$ for $0 \leq t \leq 1$.
4. $x = -t$ and $y = -t^3 - 2$ for $-2 \leq t \leq 1$.
5. $x = t^2$ and $y = t$ for $-1 \leq t \leq 2$.
7. $x = 2 \cos t$ and $y = -3 \sin t$ for $0 \leq t \leq \pi$.