

**Problem 1:** Describe the curve that is parameterized by

$$x = t \quad y = t^2.$$

**Problem 2:** Describe the curve that is parameterized by

$$x = -\cos(t) \quad y = \sin(t).$$

**Problem 3:** Describe the curve that is parameterized by

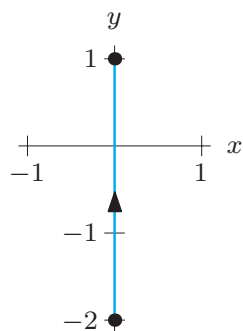
$$x = \cos t \quad y = \sin t \quad z = t.$$

**Problem 4:** Describe the curve that is parameterized by

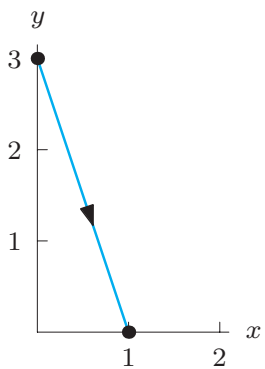
$$x = 2 \sin t \quad y = 2 \cos t \quad z = -t.$$

**Problem 5:** Find parameterizations for the following line segments.

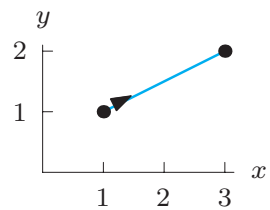
(a)



(b)

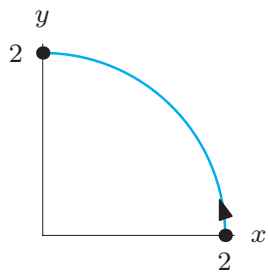


(c)

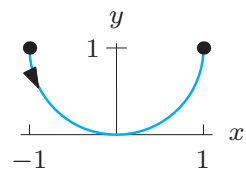


**Problem 6:** Find parameterizations for the following curves.

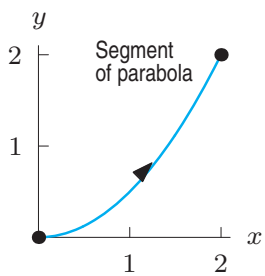
(a)



(b)



(c)



**Problem 7:** Find a parameterization for the following curves.

(a) A circle of radius 3 centered on the  $z$ -axis and lying in the plane  $z = 5$ .

(b) The circle of radius 2 in the  $xy$ -plane centered at the origin, clockwise.

(c) The circle of radius 2 in the  $xz$ -plane centered at the origin.

(d) The curve in which the plane  $z = 2$  cuts the surface  $z = \sqrt{x^2 + y^2}$ .

**Problem 8:** Find a parameterization of the line segment from  $P = (2, 5)$  to  $Q = (12, 9)$  so that  $P$  corresponds to  $t = 1$  and  $Q$  to  $t = 5$ .