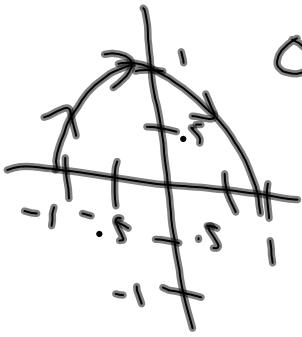


Sketch a graph of the parametric equations. Then write the corresponding rectangular equation.

$$\begin{aligned}x &= -\cos t \Rightarrow \cos t = \frac{x}{-1} & \cos^2 t = x^2 \\y &= \sin^2 t\end{aligned}$$

$0^\circ \leq t \leq 180^\circ$



A hand-drawn graph of a semi-circle in the second quadrant of a Cartesian coordinate system. The circle is centered on the negative x-axis at (0, 1). The visible portion of the circle starts at (-1, 0) and ends at (0, 1). The x-axis is labeled with -1, -.5, and .5. The y-axis is labeled with -1 and 1. A dashed line extends the circle's arc beyond the visible portion.

$$\begin{aligned}\sin^2 \theta + \cos^2 \theta &= 1 \\y + x^2 &= 1 \\y &= -x^2 + 1\end{aligned}$$

9-5 (cont.) Parametric Equations

Ex 1 Write parametric equations for the following rectangular equation.

$$y = 3x + 4$$

$$x = t$$

$$y = 3t + 4$$

Ex 2 Write parametric equations for the following rectangular equation.

$$y = 3(x - 2)^2 + 7$$

$$x = t$$

$$y = 3(t - 2)^2 + 7$$

$$x = t + 2$$

$$y = 3(t + 2)^2 + 7$$

Ex 3 Write parametric equations for the following rectangular equation.

$$\frac{x^2}{25} + \frac{y^2}{25} = 25$$

$$\cos^2\theta + \sin^2\theta = 1$$

$$\frac{x^2}{25} + \frac{y^2}{25} = 1$$

$$5\cos\theta = x$$

$$\frac{x^2}{25} = \cos^2\theta$$

$$\frac{y^2}{25} = \sin^2\theta$$

$$5\sin\theta = y$$

Ex 4 Write parametric equations for the following rectangular equation.

$$y = \frac{1}{2x}$$

$$x = t$$

$$y = \frac{1}{2t}$$

$$x = .5t$$

$$y = \frac{1}{t}$$

Homework
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