6-1 Videos Guide

6-1a

- Typical forms of parametric equations
  - $x = f(t), \quad y = g(t)$
  - OR $x = f(\theta), \quad y = g(\theta)$

Exercises:

- (a) Sketch the curve by using the parametric equations to plot points. Indicate with an arrow the direction in which the curve is traced as t increases.
  (b) Eliminate the parameter to find a Cartesian equation of the curve.
  - $x = 3t + 2, \quad y = 2t + 3$
  - $x = t^2, \quad y = 1 - t$

6-1b

Exercises:

- (a) Eliminate the parameter to find a Cartesian equation of the curve.
  (b) Sketch the curve and indicate with an arrow the direction in which the curve is traced as the parameter increases.
  - $x = \sqrt{t+1}, \quad y = \sqrt{t-1}$
  - $x = \tan^2\theta, \quad y = \sec\theta, \quad -\pi/2 \le \theta \le \pi/2$

6-1c

- Parametric equations of a cycloid
  - $x = r(\theta - \sin\theta), \quad y = r(1 - \cos\theta)$