

### 3.9-Slopes and Tangents of Parametrized Curves

To find the slope of the tangent line for a parametrized curve, use the fact that

$$\frac{dy}{dx} =$$

*Examples:*

Find an equation of the line tangent to the curve given by  $x = \sec \theta$ ,  $y = \tan \theta$  at the point where  $\theta = \frac{\pi}{3}$

Find an equation of the line tangent to the curve given by  $x = \sqrt{t}$ ,  $y = 2t + 4$  at the point  $(3, 22)$ .

Find the points on the curve  $x = 2t^3 - 15t^2 + 24t + 7$ ,  $y = t^2 + t + 1$  where the tangent line is horizontal or vertical

The curve  $x = t^3 - 4t$ ,  $y = t^2$  crosses itself at the point  $(0, 4)$ . Find equations of both tangent lines.