

$$x = t - t^{-1}, \quad y = 5 + t^2; \quad t = 1. \quad \frac{dy}{dt} = 2t, \quad \frac{dx}{dt} = 1 + t^{-2} = \frac{t^2 + 1}{t^2}, \quad \text{and}$$
$$\frac{dy}{dx} = \frac{dy/dt}{dx/dt} = 2t \left( \frac{t^2}{t^2 + 1} \right) = \frac{2t^3}{t^2 + 1}.$$

When  $t = 1$ ,  $(x, y) = (0, 6)$  and  $dy/dx = 1$ , so an equation of the tangent to the curve at the point corresponding to  $t = 1$  is  $y - 6 = 1(x - 0)$ , or  $y = x + 6$ .