

## Parametrics Quiz 2

1. Find  $\frac{dy}{dx}$  and  $\frac{d^2y}{dx^2}$  for the parametric system  $x(t) = t^2 + 2$  and  $y(t) = t^2 + 5t + 6$
2. A Curve  $C$  is defined by the parametric equation  $x(t) = 2t^2 + t - 1$  and  $y(t) = t^3 - 2t^2$ . Find an equation to the tangent line to  $C$  at the point where  $t = 2$ .
3. Find the points of horizontal and vertical tangency, if any, to  $x(t) = t^2 + 5$ ,  $y(t) = t^2 - 4t$ .
4. Write an integral expression for the arc length of  $x(t) = e^{2t}$  and  $y(t) = 3t - 1$  over the interval  $-2 \leq t \leq 2$