1. (6 pts) Find an equation of the tangent to the curve at the point corresponding to $t = 1$.

$$\begin{cases} x = t^2 \\ y = t^3 - t \end{cases}$$

2. (7 pts) Find the area enclosed by the curve (an ellipse)

$$\begin{cases} x = 3\cos\theta \\ y = 2\sin\theta \end{cases} \quad \text{where } 0 \leq \theta \leq 2\pi.$$

3. (7 pts) Find the exact length of the curve

$$\begin{cases} x = 3t^2 \\ y = t^3 - 3t \end{cases} \quad \text{where } 0 \le t \le 1.$$

4. (6 pts) Find the Maclaurin series of the function.

$$f(x) = \frac{1}{2}(e^x + e^{-x})$$