9G Differentiating Parametric Equations

1. Find the gradient at the point P where $t = 2$, on the curve given parametrically by:

$$x = t^3 + t, \ y = t^2 + 1, \ t \in \mathbb{R}$$

2. Find the equation of the normal at the point P, where $\theta = \frac{\pi}{6}$, to the curve with parametric equations $x = 3sin\theta$ and $y = 5cos\theta$.