1. A point P(x, y) moves on the graph of the equation $y = x^3 + x^2 + 1$, the x – coordinate changing at a rate of 2 units/sec. How fast is the y-coordinate changing at the point (1, 3)?

2. A point P(x, y) moves on the graph of $y^2 = x^2 - 9$ such that $\frac{dx}{dt} = \frac{1}{x}$. Find $\frac{dy}{dt}$ at the point (5, 4).