1. Evaluate the derivative of the function

\[ f(x) = \frac{(e^x + x)^2}{3x^2} \]  

(1)
2. A particle is moving on the curve \( x(t) = t^3 + 21t + 10 \).
   a) Find the time \( t \) at which this particle is at rest.
   b) Find the speed of this particle at \( t = 5 \) second.
   c) When is this particle moving in positive direction of x-axis?
   Hint: \( x' \) and \( x'' \) give you the value of speed and acceleration, respectively. A particle is at rest at time \( t_0 \) when the value of speed is zero.