1. (4 points) Find the $x$-value for each point on the graph of $f(x) = x^3 + 2.5x^2 - 2x + \ln 3$, where the tangent line is horizontal.

2. (2 points) If $f$ is a differentiable function, find an expression for the derivative of the function $y = x^3 f(x)$
3. (2 points each) Using Leibniz notation (i.e \( dy/dx, dP/dt, \) etc.), find derivatives for each of the following functions:

(a) \( P = s^e + e^{-5\ln 2} \)

(b) \( r = \frac{\pi}{3t^3 - 7t + 1} \)