1. (5 pts) Evaluate \( \frac{dy}{dt} \) for \( xe^y - 1 = 5 \ln x; \) \( \frac{dx}{dt} = 3, x = 1, y = 0 \)

2. (5 pts) A manufacturer of handcrafted wine racks has determined that the cost to produce \( x \) units per month is given by \( C = 0.4x^2 + 5,000 \). How fast is the cost per month changing when production is changing at the rate of 12 units per month and the product level is 100 units?