

Term Test B version 1

(1) [5 points] Solve the following equation,

$$\ln 2x - \ln 4 + \ln(x - 2) = 1 \quad (1)$$

(2) [5 points] How long will it take the world population to double at an exponential growth rate of 1.64% per year?

(3) [5 points] Solve the following equation,

$$3^{x^2} = 175^{x-1} \quad (2)$$

(4) [5 points] Suppose we are preparing a lovely *Canard à l'Orange* (roast duck with orange sauce). We first take our duck out of a 36°F refrigerator and place it in a 350°F oven to roast. After 10 minutes the internal temperature is 53°F. If we want to roast the duck until just under well-done (about 170°F internally), when will it be ready?

(5) [5 points] Evaluate

$$\log_4 \left(2 \cdot \sqrt{32} \right) + \log_{27} \sqrt{3} \quad (3)$$