

SHOW ALL WORK!!! Unsupported answers might not receive full credit. Furthermore, please give me EXACT answers. You have 10 minutes to complete this quiz.

Problem 1 [3 pts] Expand $\log_6 \left(\frac{p^3}{qt^4} \right)$ completely.

Problem 2 [4 pts] Solve the equation $e^{2x} - 4e^x - 21 = 0$. Give EXACT answers before converting to decimals.

Problem 3 [3 pts] A sample from a mummified bull was taken from a pyramid in Dashur, Egypt. The sample shows that 56% of the carbon-14 left at the time of death remains. Use the model equation $Q(t) = q_0 e^{-0.000121t}$ to determine the age of the sample (since the time of death), rounding to the nearest year.