

YOUR NAME: _____

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Read each problem **very carefully** before starting to solve it. Each problem is worth 5 points. It is necessary to show **all** your work. Correct answers without explanations are worth 0 points. GOOD LUCK!!

1. Your recently married sister Yolanda would like to plan for her future child's education. She would like to set up an account yielding an annual interest rate 12% compounded quarterly that will have a \$30,000 balance in 15 years time. Advise her on the amount she should deposit now for her goal to be attained.

2. If a thermos bottle is chilled to 35° Fahrenheit and then left in a 70° room to warm, its temperature will be $T(t) = 70 - 35e^{-0.1t}$ degrees after t hours. If your friend enjoys best his drink at 45° , for how long should he wait for perfect enjoyment?

3. Solve the logarithmic equation $\log_7 x + \log_7 (8 - x) = 1$.