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

1. [4 points] According to the 2010 census, the town of Sault Sainte Marie, MI, had a population of 14,144, whereas, in the 2020 census the population was estimated to be 13,337.

   (a) Find an exponential model for the population $P(t)$ as a function of time. If you approximate, use 3 decimal digits. Show all your steps.

   (b) What does your model predict about the population in the (upcoming) 2030 census?

2. [4 points] Find the formula for an exponential function passing through the points $(1, 500)$ and $(4, 256)$. Please do not approximate.

3. [4 points] How much do we need to invest now in an account paying 4% compounded monthly in order to have $40,000 dollars in 10 years to buy a new car?