Howard University Math Department

Instructions:

PLEASE PROVIDE STEP BY STEP EXPLANATIONS

WRITING ONLY ANSWERS WILL NOT GET FULL CREDIT

Time Limit 30 minutes

Please read the questions carefully before answering

1. (10 points) Solar panels at a home cost 10000 dollars to install and paid back 1200 a year in savings. Write the net expenditure (cost minus savings) after x years as a linear function $C(x)$. How many years before the net expenditure becomes zero?

2. (20 points) For the sequence $3, 8, 13, 18, ...$ do the following:
   1. Explain why it is an arithmetic sequence and find the common difference.
   2. Write a formula for the n-th term a_n and use it to find a_{100}.
   3. Find the sum for the first 100 terms of the sequence using the formula $\frac{a_1 + a_n}{2} \times n$. (Put $n = 100$ in formula).