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) Find the vertex and axis of symmetry of the parabola $y = x^2 + 2x + 2$.

2. (10 points) How far is the focus from the vertex in a parabolic dish of depth 2 feet and diameter of rim 4 feet?

3. (10 points) Check if the following are geometric sequences. Find common ratio if they are.

$$A. \quad 3, 9, 27, 81, ... \qquad B. \quad 4, 2, \frac{1}{2}, \frac{1}{4}, ...$$