The number *N* of bacteria in a culture at time *d*, where *d* is measured in days, is modeled with the following function:

1. Use technology to analyze the modeling function by doing the following:
2. Use a calculator to determine the number of bacteria when *d* = 10.
3. Use a graphing utility to graph and estimate the maximum number of bacteria.

*Note: The graphing utility found at the Desmos web link or the TI family of graphing calculators could be used.*

1. Provide an image of the graph produced by the graphing utility.

*Note: In order to show the entire graph on the screen, you will need to adjust the window. The* y*-axis in particular will need to be adjusted to account for the large* y *values generated by the equation.*

3. Determine the exact value for the maximum number of bacteria, using a computer algebra system.

*Note: An exact value is not a rounded decimal approximation.*

1. Provide an image of the output from the computer algebra system.

*Note: The computer algebra system found at the Wolfram Alpha web link could be used.*

4. Discuss **two** advantages to using graphing calculators or other math-specific technologies in the classroom.

B. Draw a geometric shape using your choice of dynamic geometry software, and do the following:

*Note: The dynamic software found in Geometer’s Sketchpad or Geogebra could be used.*

1. Provide a written explanation of how you used the dynamic geometry software to analyze at least two geometric properties of the shape (e.g., side lengths, angle measures, sums of angles, facts about diagonals, bisectors).
2. Provide visual images (e.g., screenshots, graphics) of how you used the dynamic geometry software to analyze geometric properties of the shape.
3. Provide a written explanation of how you used the dynamic features of the software to explore a theorem about the shape used in part B1.
4. Provide visual images (e.g., screenshot, graphic) that demonstrate how you used the dynamic features of the software to show that the theorem holds true.

*Note: Use at least two examples to show that the theorem holds true.*

1. Compare the strengths and limitations of the software you used *to a similar application* (e.g., learning curve, cost, access, features).

C. Acknowledge sources, using in-text citations and references, for content that is quoted, paraphrased, or summarized. sales@hansenpolebuildings.com