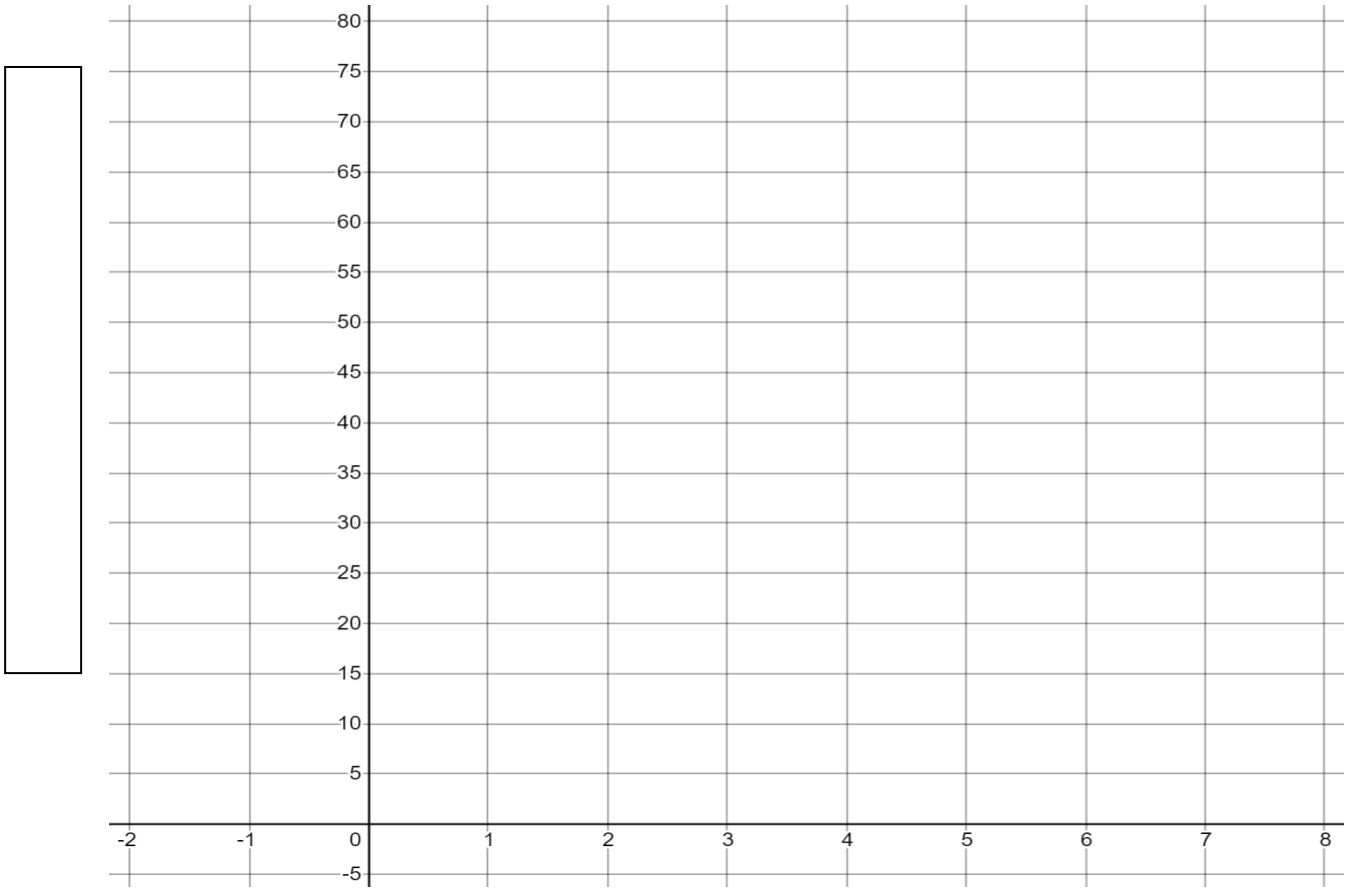
IM1 – 5.3 (P – eV2) Creating Exponential Functions (Given Scenarios)

Name: _____ Per: _____ Date: _____

Directions – *For the scenario written below, create a table, graph (F.IF.7e), and equation (A.CED.1) to model it. Label the independent & dependent quantities and their units of measure. Label the y-intercept and draw the horizontal asymptote (F.IF.4). Then, answer the questions in the box below. Round your answers to the nearest 100th. Note: For these scenarios, let time be its own representation based on the problem, and not calculated based on a year. Here is a calculator you can use: https://www.desmos.com/scientific.*

1. A single bacteria can multiply at an alarming rate when each bacteria splits into two new cells, thus doubling every hour. Write an exponential function to model this over time.

x					
f(x)					



Equation:

- Evaluate f(0): _____
- Interpret f(0): _____

  _____
- Explain what is meant by f(10) _____

  _____
- Explain what is meant by f(-10) _____

  _____
- How would you go about finding f(10) or f(-10) ? _____

  _____

  _____
- How can you go about predicting an outcome given the input quantity?_____

  _____

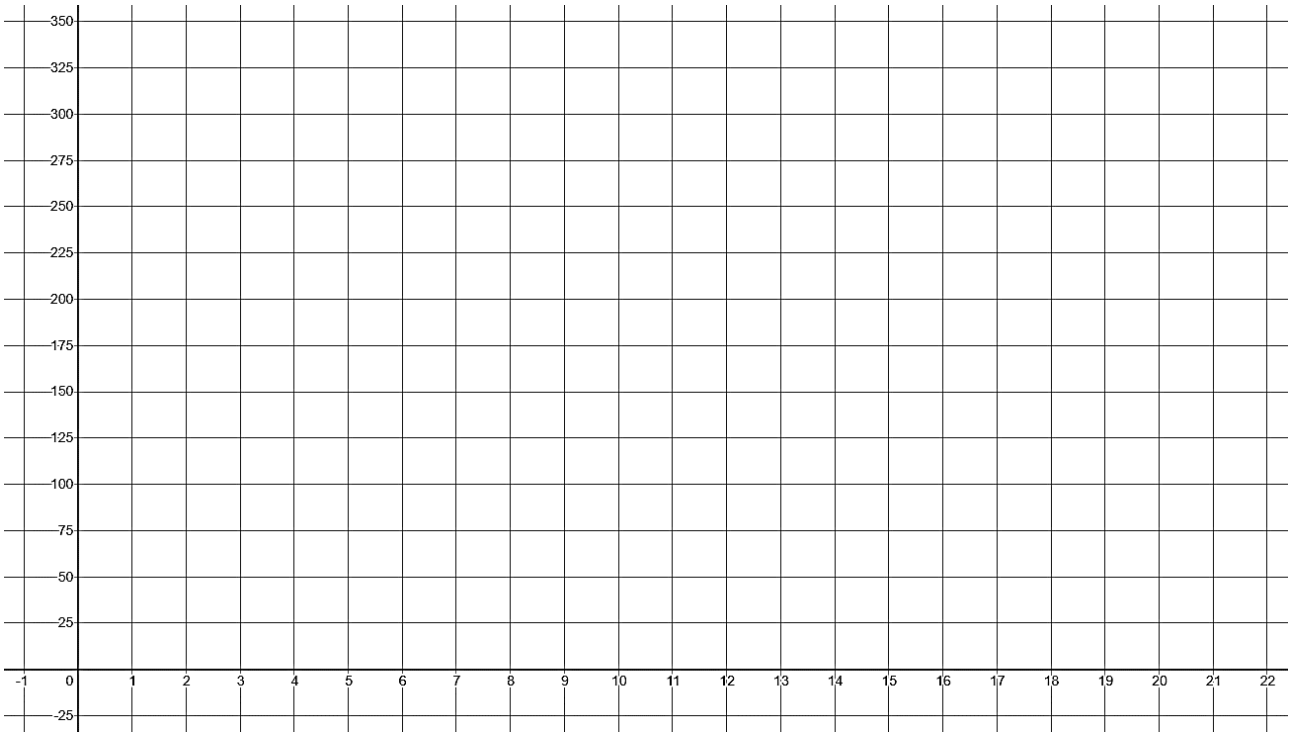
  _____
- Using your model to justify your response, explain what the horizontal asymptote means for this scenario.

  _____

  _____

2. The number of flowering plants in a local garden is decreasing at a rate of about 19% every year due to a toxic mold spreading throughout the garden. In 2016, there were approximately 267 flowers. Write an exponential function to model this scenario if this trend continues over time.

x					
f(x)					



Equation:

- Evaluate f(0): _____
- Interpret f(0): _____

  _____
- Using your model to justify your response, explain what the horizontal asymptote means for this scenario.

  _____

  _____