**Biology 103 Alien Assignment 1**

**\*\* Show ALL WORK.  
\*\* Show UNITS.   
\*\* Each question is worth 10 points.**

**\*\*Submit ONLY Word file or PDF on Moodle. No other formats allowed.**

**1.** In the environment of the Enterprise:

A. How many hours would it take for 1 tribble to produce one million tribbles?

B. How many tribbles would you need initially to produce 1 million tribbles in 2 days?

**2.** Scotty beams 4,000 tribbles off the Enterprise onto the Klingon ship. The Klingons poison the tribbles, so over 1 day (24 h) their population falls to 100.

A. What is the half-life of the dying Tribbles? That is, how long does it take half the population to die?

B. Suppose some of the surviving tribbles adapt to the poison. They still produce10 offspring per litter--but only half their offspring survive the poison, and the parent dies after one litter. What is the new doubling time of the poisoned tribbles?

**3.** From the planet Zorgon, Captain Keisha brings one Fribble onto her space ship. Each Fribble produces a litter of 8 (then dies) every 6 hours.

A. Calculate how many Fribbles there will be in 3 days.

B. Set up an Excel file to calculate the number of tribbles produced over 3 days. In Excel, plot your results (number of tribbles over time). Copy the image of the plot into your Word file. (For example, Screenshot, crop, copy-paste into Word.)

**4.** Tell a story (between 50-100 words) explaining what the Fribble looks like, and how Keisha’s Fribbles save the day.

5. Suppose Fribbles reproduce asexually; or as hermaphrodites; or sexually, with two different mating types. Would the type of reproduction affect their rate of increase? Would it affect whether the Fribbles increase exponentially? Explain.