

Name _____

Student Number _____

Show all work. Label your answers clearly.

1. (4 points) Put the equation $y = \frac{6}{2^{3-5x}}$ in standard exponential form.

2. At noon you introduce penicillin (an antibiotic) into a colony of otherwise healthy bacteria. At 1 PM, the population of live bacteria in the colony is 500,000, but at 3 PM, the population is only 200,000.

a) (4 points) Find an equation for $B(t)$, the population of live bacteria in the colony t hours after noon, assuming that the population decays exponentially.

b) (2 points) According to your model, what should the population of bacteria be at 6 PM?