

Math 123 Quiz

November 11, 2013

Professor Ilya Kofman

NAME: _____

1. You want to fence off a rectangular garden adjacent to a road. The fencing along the road costs \$15 per foot, and the other fencing costs \$5 per foot. Find the area of the largest garden possible with \$400 of fencing.

Area = _____

2. A culture initially has 5,000 bacteria. After four hours it has 17,000 bacteria.

(a) Find the function that models the population after t hours.

(b) Find the population after 2.5 hours.

(c) When will the population reach 29,000?

3. The half-life of carbon-14 is 5730 years.

(a) If the initial amount is 25 g, find the function that models the amount of carbon-14 after t years.

(b) If the initial amount is 25 g, how much carbon-14 is left after 8,000 years?

(c) If a mummy contains 57% of its original carbon-14 amount, how old is it?