

MATH 110-003, QUIZ 5

November 29, 2016

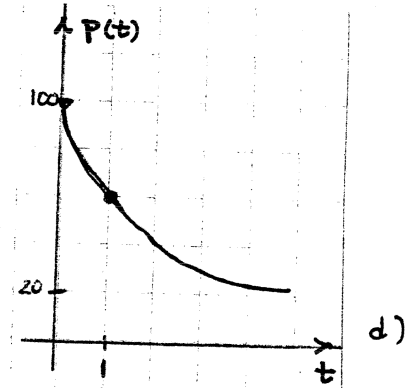
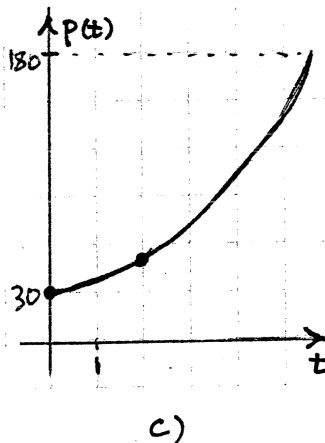
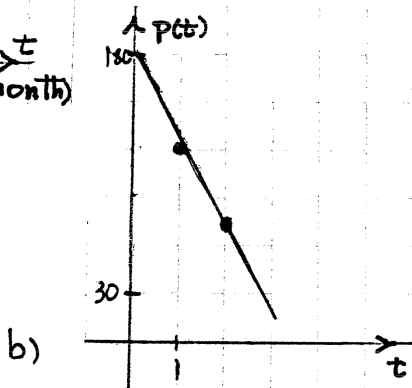
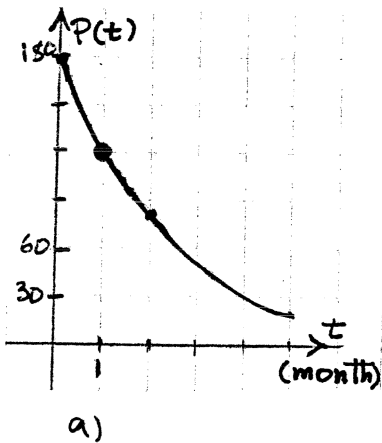
Time : 15 minutes

Show all your work. No calculators, no books/notes are allowed.

Student number and initials : _____

There are 180 orange trees in a citrus orchard. A fungus attacks the trees, and each month the number of trees changes with a rate proportional to their population.

- 1) This situation describes _____ model.
- 2) Which graph best represents this situation?



3) What is the function that models this situation? (Hint : use the graph to find the decay constant, k)

- | | |
|--|---------------------------------------|
| a) $P(t) = 180 e^{-\ln(\frac{2}{3})t}$ | b) $P(t) = 100 e^{\ln(\frac{2}{3})t}$ |
| c) $P(t) = 180 e^{\ln(\frac{2}{3})t}$ | d) $P(t) = 180 e^{\ln(\frac{2}{3})t}$ |

4) What is the number of trees after 5 months?

- | | | | |
|---------------------|---------------------------------|---------------------------------|--------------------------------|
| a) 180×2^5 | b) $180 \times \frac{2^5}{3^5}$ | c) $180 \times \frac{3^5}{2^5}$ | d) $180 \times 2^5 \times 3^5$ |
|---------------------|---------------------------------|---------------------------------|--------------------------------|