

Reading Questions 4.2 (8 pts)

Name _____

Due Date: _____

Bring this completed sheet with you to class on the due date to be handed in at the beginning of the period.

- (1) 1. In **Example 2**, a model for the US population is given. Use this model to approximate, to the nearest million, the population of our country in 2050. _____
2. For Example 2, use logarithms to determine the value of t for which $P = 300$.
- (2) Report your answer **exactly** (involving a logarithm) as well as an approximation accurate to 2 decimal places. Show work below
 Exact answer: _____
 Approximate answer: _____

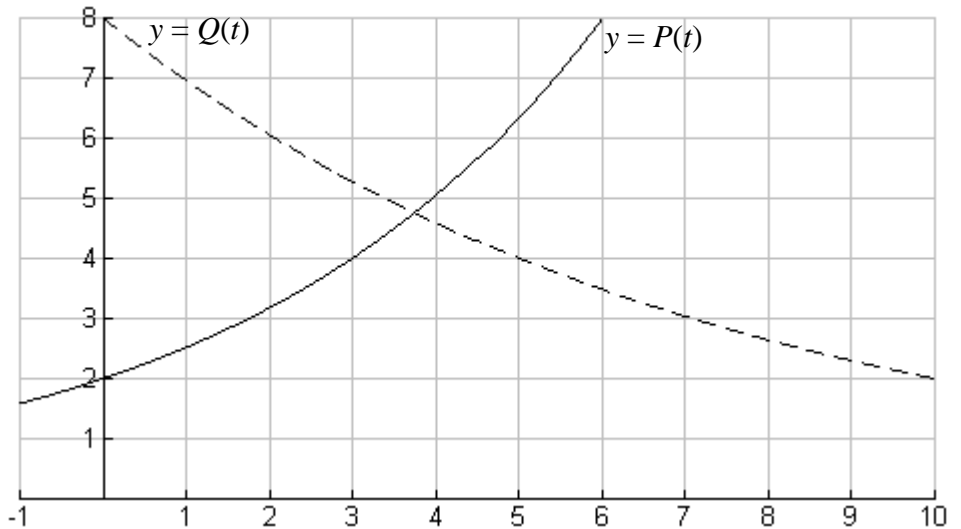
- (1) 3. The mathematical model in **Example 2** gave t in years since Jan.1, 2006. What month does the model predict that $P = 300$? _____
 Note: The US population officially celebrated turning 300 million on October 17, 2006.

- (1) 4. (Select one) The doubling time of a quantity is ...
 A. the time it takes for the quantity to grow by 50%
 B. the time it takes for the quantity to grow by 100%
 C. the time it takes for the quantity to grow by 200%
 D. the value of the quantity after twice the amount of time has passed

Use the graphs of the exponential functions P and Q to answer Questions 5 and 6.

- (1) 5. Estimate the doubling time of P .
 $t =$ _____

- (1) 6. Estimate the half-life of Q .
 $t =$ _____



- (1) 7. Read **Example 12** in **Section 4.2** very carefully. Why didn't they solve it using logs? Pick the best answer.
 A. they could have, but the authors preferred to use the graphical approach instead.
 B. it is not possible to solve this problem with logs.
 C. they were just plain lazy
 D. the problem cannot be solved by any method. There is no solution.
 E. it would have required taking the logarithm of 0 which is undefined.