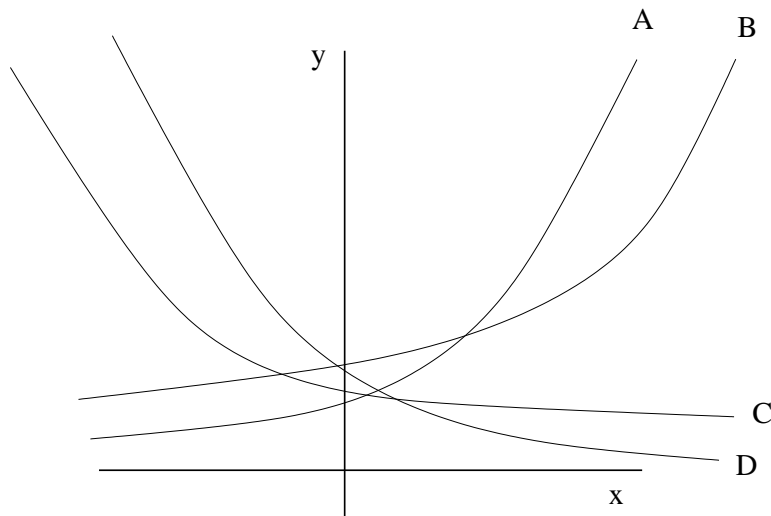# MATH 105 - SEC 001, FALL 2010. QUIZ 4
TIME LIMIT: 20 MINUTES

INSTRUCTOR: GERARDO HERNÁNDEZ

Good luck!

Problem 1

Assuming that the equations for A, B, C and D above can be written in the form $y = a(b)^t$, use the graphs to answer the following questions.

(1) Which curve gas the equation with the SMALLEST value of a?

(2) Which curve has the equation with the SMALLEST value of b?

Problem 2 During the summer, the undergraduate population of Ann Arbor drops dramatically and stays low until the start of August, when some students start moving in. The following table gives some values for $P(d)$, the undergraduate population of Ann Arbor on the dth day of August.

d	5	14	23	31
P(d)	12,166	17,317	24,647	33,731

(1) Could $P(d)$ be modeled by a linear function? To receive credit on this question, you must provide correct, specific reasons for your answer.

(2) Does the table indicate that $P(d)$ is concave up, concave down, or neither? To receive credit on this question, you must provide correct, specific reasons for your answer.

Problem 3

The number of asthma sufferers in the world was about 84 millions in 1990 and 130 millions in 2001. Let N represent the number of asthma sufferers (in millions) worldwide t years after 1990.

(1) Write N as a linear function of t. What is the slope? What does it tell you about asthma sufferers?

(2) Write N as an exponential function of t. What is the growth factor? What does it tell you about asthma sufferers?

Problem 4

The population of a colony of rabbits grows exponentially. The colony begins with 10 rabbits; five years later there are 340 rabbits.

(1) Give a formula for th population of the colony of rabbits as a function of time.

(2) Use a graph to estimate how long it takes for the population of the colony to reach 1000 rabbits.