

Quiz #2

M1220-1

Fall 2003

Name: _____

Score: _____

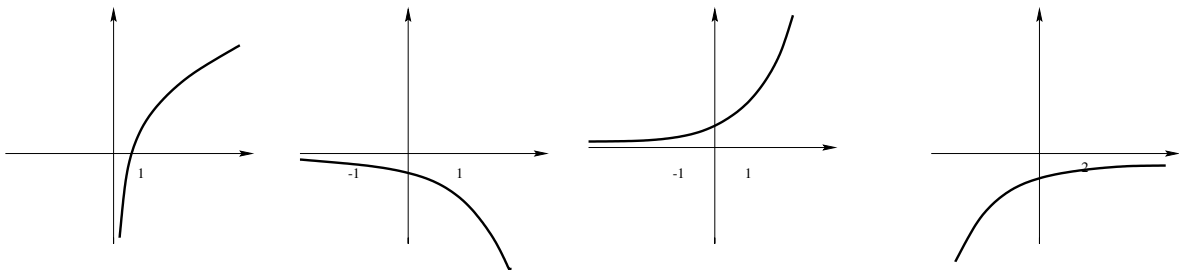
QUESTIONS: each question is worth 10 points. Give your answer and a short but complete motivation of it for full credit.

1. TRUE or FALSE?

Given $a > 0$, if $a^x = a^y$ then $x = y$.

2. What is the graph of the following function?

$$y = -(1/2)^{-x}$$



3. Circle the true statements. NOTICE!! More than one statement could be correct , or they may all be incorrect!!!

Given the function:

$$y = \ln 2^x + 1$$

- (a) it is defined for all x ;
- (b) it is defined only for $x > 0$;
- (c) it is strictly monotonic;
- (d) its range is $y \geq 1$;
- (e) it is a straight line.

4. You are growing a population of cells such that each cell splits into two cells at regular time intervals. If initially you have N cells and after 20 minutes you have $3N$ cells, how many cells will you have after 1 hour?

5. What is the following limit?

$$\lim_{h \rightarrow +\infty} (1 + (1/h))^{(1/h)}$$

PROBLEMS: each problem is worth 25 points. Show me enough work to let me know what you are doing!

1. Compute

$$\lim_{x \rightarrow 5^+} (1 + (x - 5))^{\frac{1}{2x-10}}$$

2. Determine the general solution of the following differential equation:

$$xy' + y = e^x$$