Bridges Name _____
Math 122A [1.2] & [1.4]

Exponents and Logarithms Practice

(1) A straight line **L** intersects the curve $f(z) = 10^z$ at $z = 0$ and at $z = \log 2$. Find the equation of the line **L**.

(2) The exponential function $y(n) = Ce^{an}$ satisfies the conditions $y(0) = 2$ and $y(1) = 1$. Find the values of the constants C and a. What is the value of $y(2)$?

(3) If $g(p) = \ln(ap + 2)$ where $a \neq 0$, what is the effect of increasing a on
(a) the *g(p)*-intercept? (b) the *p*-intercept?

(4) What is the doubling time of prices which are increasing by 5% a year?

(5) The size of an exponentially growing bacteria colony doubles in 7 hours. How long will it take for the number of bacteria to triple?

(6) Find the half-life of a radioactive substance that is reduced by 30% in 20 hours.

(7) In 2000, there were about 213 million vehicles (cars and trucks) and about 281 million people in the US. The number of vehicles has been growing at 4.3% a year, while the population has been growing at 1.5% a year. If the growth rates remain constant, after how many years (to the nearest tenth), will there be, on average, one vehicle per person.