SOLUTIONS

Math 1260 Quiz #9 - June 13, 2006

1. The population of bacteria in a petri dish is growing exponentially. The initial amount is 10,000. After 6 hours the population has grown to 15.000.

a. Find an equation for the amount of bacteria present after t hours.

b. How many hours for the initial population to double?

$y = 10000e^{kt}$

$15000 = 10000e^{6k}$

$1.5 = e^{6k}$

$\frac{\ln 1.5}{6} = k = .06758$

a. $y = 10000e^{.06758t}$

b $20000 = 10000e^{.06758t}$

$2 = e^{.06758t}$

$\frac{\ln 2}{.06758} = t$

$= 10.26$

10.26 hours

2. Let

$$f(x) = \frac{2x-1}{x+2}.$$

Sketch the graph $y = f(x)$, labelling all x and y intercepts, vertical and horizontal asymptotes.