

Mathematics 352

Quiz 1

February 15, 2013; 5 minutes

Name: _____

1. Consider a population p of filthy, disgusting field mice that grows at a rate proportional to the current population, so that $dp/dt = rp$ for constant r .
 - (a) Find the growth constant r if the population doubles in 30 days.

(b) Find the growth constant r if the population doubles in N days.

2. Verify that each of the functions

$$y_1(t) = t^{1/2}, \quad y_2(t) = t^{-1},$$

defined for $t > 0$, is a solution of the differential equation $2t^2y'' + 3ty' - y = 0$.