

Solve these differential equations.

(1) $y' = 0.1y - .02y^2$

(2) $y' = 0.2y - .03y^2$

(3) $y' = \frac{y^2 + 1}{t}$

(4) The colonization rate for termites in a certain forest is $c = .25$, while the mortality rate for termite colonies is $m = 0.1$. What proportion of the dead trees in the forest will eventually be occupied by termites?