

Exponential Growth and Decay Notes

Write a differential equation relating the given statements.

The rate of change of r with respect to t is proportional to $33 - r$

The rate of change of s with respect to w is proportional to the square of w .

The rate of change of u with respect to j is inversely proportional to the square root of u

The rate of change in the population $P(t)$ of Sugar Land wild hogs is proportional to $800 - P(t)$ where t is measured in years. Find the equation that gives the number of hogs if at $t=0$ there are 100 hogs and 5 years later there are 200 hogs.

The number of batteries increases at a rate proportional to the square root of the number of batteries. If the total number of batteries in a store goes from 2500 to 3600 in five years, what is the inventory at the end of 10 years?

Water is leaking out of a pool at a rate that is proportional to the cube root of the depth of the pool. The water drops from 8 feet to 6 feet in 2 hours. Find the equation that will determine the depth of the pool at time t .