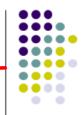
More on Applications



The population of River Oaks in 1950 was 6500 If the population is growing at a rate of 8% per year, in how many years will it reach 10,000?



$$\log \frac{10,000}{6,500} = \log (1+.08)^{2}$$

$$\log (\frac{10000}{6500}) = \times \log 1.08$$

$$5.6 \text{ yrs} = X$$

Isolat the exponential

take the log of both sides

Bacteria is doubling every hour. If there are 68 present initially, how long will it take to have 700?



$$\frac{700}{68} = \frac{38(2)}{68}$$

$$\frac{700}{68} = \log(2)$$

$$\log(\frac{700}{68}) = \frac{109(2)}{(992)}$$

$$1092$$

$$1092$$

$$1092$$

$$1093$$

If I invest \$5000 in a bank that pays 5% interest compounded monthly, how many years will it take for my investment to reach \$15,000?



$$y = P(1 + \frac{1}{12})^{12}$$

$$|5,000| = 5000(1 + \frac{05}{12})^{12}$$

Suppose the half-life of a certain radioactive material is 20 days and there are 10 grams initially. In how many days will there be 2 grams left?

$$y = a(1-r)^{\frac{1}{2}}$$

$$\frac{1}{10} = 109(0.5)^{\frac{1}{20}}$$

$$\frac{1}{109} = \frac{1}{109}(0.5)^{\frac{1}{20}}$$

$$\frac{1}{109} = \frac{1}{109}(0.5)^{\frac{1}{20}}$$