

Name: _____

Applications – Exponential Formulas:

Growth and Decay: $y = P(1 \pm r)^t$

$y =$ _____

$P =$ _____

Compounded Interest: $y = P\left(1 + \frac{r}{n}\right)^{nt}$

$r =$ _____

Compounded continuously: $y = Pe^{rt}$

$n =$ _____

Half Life: $y = P\left(\frac{1}{2}\right)^{\frac{t}{h}}$

$t =$ _____

$h =$ _____

Examples:

1) A small town has a population of 8,702 in the year 2000 and is growing at a rate of 2.8% per year. What is the expected population in the year 2030?

2.) A population of 1200 deer is dying at a rate of 7% per year. How many deer are expected after 10 years?

How many years until the 100 deer remain?

3.) Suppose I invest \$300 into an account that earns 2.5% interest compounded every month. How much money will I have after 7 years?

4.) You invest some money into an account that earns 3% compounded continuously. How long will it take you to double your money?

5.) If Anne invests \$600 into an account that compounds interest quarterly, at what rate does she need the interest to be if he want to double his investment in 5 years?

6.) Selenium-83 has a half-life of 25 minutes. How many minutes would it take for a 12.5 mg sample to decay and have only 2.25 mg remaining?