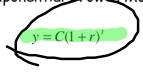
## Section 8.5 Exponential Growth Functions

Exponential Growth increwes at the same rate Ones or unit of time.

Exponential Growth Model



c= (nitial amount r= rade (dec.) (1+r)= growth factor t= Eine basedon componded.

## Examples

Assignment:

1. A savings certificate of \$1000 pays 6.5% annual interest compounded yearly. What is the balance when the certificate matures after 5 years?

(= \$1600 (1+1)= 1,065 y=1000(1.065)5 2. You deposit\$800 in a savings account that pays 2.5% arrival interest compounded

yearly. What is the balance after 3 years?

C= 800 V= .035 C= 800 (1.035)<sup>3</sup> V+1= 1.035 C= 800 (1.035)<sup>3</sup> S(1.51) 3. An experiment started with 100 bacteria. They double in number every hour.

a. Write a model for the number of bacteria after 8 hours.

C=100

b. Find the number of bacteria after 8 hours. y = 100 (2) target y = 25, 600 bacteria after 8 hours.

## Section 8.6 Exponential Decay Functions

Assignment:

Exponential Decay

decreases the same amount

Exponential Decay Model

$$y = C(1-r)^t$$

c= initial
r= reate
(1-r)= deay lador
t=time

## Examples

1. From 1983 to 1997, the ratio of students per computer at a school has dropped b about 16.8% per year. If there were 103 students per computer in 1983 and 1983 is the base for comparison, what was the number of students per computer in 1997?

t = 0 in 1983 t = 14 in 1997  $y = 103(.832)^{14}$ y = 8 saudunts

2. You bought a used boat for \$2300. The value of the boat will be less each year because of depreciation. The boat depreciates at the rate of 8% per year.

a. Write an exponential decay model to represent this situation.

C= 2300

ートニセ

Tris situation.
y=2300(.92)t

b. Estimate the value of the boat in 2 years.

七=ユ

Us of the boat in 2 years.

y= 2300 49346. Aa

c. Estimate the value of the boat in 5 years.

4=5

y= 2300(.92)5 y= 2300(.92)5