Notes 8-8 Obj. 1

Exponential Growth

Ex. 1: Suppose your community has 4512 students this year. The student population is growing 2.5% each year. Write an equation to model the student population. What will the student population be in 3 years?

$$y = 4512 \cdot 1.025^x$$

$b = 100\% + 2.5\% = 102.5\%$ as a decimal

$$y = 4512 \cdot 1.025^3$$
$$y = 4512 \cdot 1.0868906$$
$$y \approx 4859 \text{ students}$$

* round to one's place since you can't have a fraction of a student

Ex. 2: Suppose you deposit $1000 in a college fund that pays 7.2% interest compounded annually. Find the account balance after 5 years.

$$y = 1000 \cdot 1.072^x$$

$b = 100\% + 7.2\% = 107.2\%$

$$y = 1000 \cdot 1.072^5$$
$$y = 1000 \cdot 1.4157088$$
$$y \approx \$1415.71$$

* round to hundredths since it is $

Ex. 3: You deposit $200 into an account earning 5%, compounded monthly. How much will be in the account after 2 years?

$$y = 200 \cdot (1.004\overline{16})^x$$

5%

$b = 100 + \dfrac{5}{12}\% =$ ← monthly

$b = 100\% + .41\overline{6}\% =$

$100.41\overline{6}\%$

$2 \text{ yrs} \cdot 12 \dfrac{\text{months}}{\text{yr}} = 24 \text{ months}$

$$y = 200 \cdot 1.004\overline{16}^{24}$$
$$y = 200 \cdot 1.10494131\%$$

$$y \approx \$220.99$$

* round to hundreds since it is $