

name:



Unit 6 Day 11

EXPONENTIAL GROWTH AND DECAY - HOMEWORK

1. In 2000, Florida's population was 16 million. Since 2000, the state's population has grown about 2% each year. How big will the population be in 2016?

$$y = 16(1 + 0.02)^6$$
$$16(1.02)^6$$
$$18.01 \text{ million}$$

2. The purchase value of your Range Rover is \$84,950. If it depreciates at a value of 1.5% each year, what will be the value of your Range Rover after 12 years?

$$y = 84,950(1 - 0.015)^{12}$$
$$= 84,950(0.985)^{12}$$
$$= \$70,859.51$$

1.5% →
0.015

3. The number of Samsung Galaxy S4's being sold is decreasing at a rate of 2.4% per month. There were 1.5 billion Galaxy S4 models sold in the month of August. How many will be sold in the month of December?

$$y = 1.5(1 - 0.024)^4$$
$$1.5(0.976)^4$$
$$1.36 \text{ billion}$$

→ 0.024
4 months

4. Mrs. Berenson has 1 friend. She recently showed off her math skills and is increasing her circle of friends by 2% every year. How many friends will Mrs. Berenson have in 5 years?

$$y = 1(1 + 0.02)^5$$
$$= 1(1.02)^5$$
$$= 1.1$$
$$= \text{still one friend, but slowly increasing 😊}$$

5. Account A has \$500 and pays 6% interest compounded annually. Account B has \$600 and pays 5% interest compounded annually. After 5 years, which account has more money? How much more?

$$\text{ACCOUNT A} = y = 500(1 + 0.06)^5$$
$$\$669.11$$

$$\text{ACT B} = y = 600(1 + 0.05)^5$$
$$\$765.77$$

Account B!