Algebra 1 7.6

Solve problems involving exponential growth

Solve problems involving exponential decay

exponent

base

whiteboards

$y = a(1+r)^t$

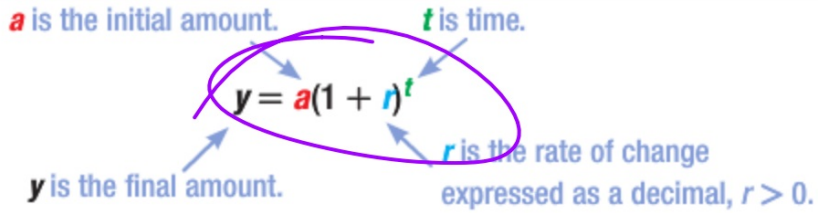
$y = a(1-r)^t$

$y =$

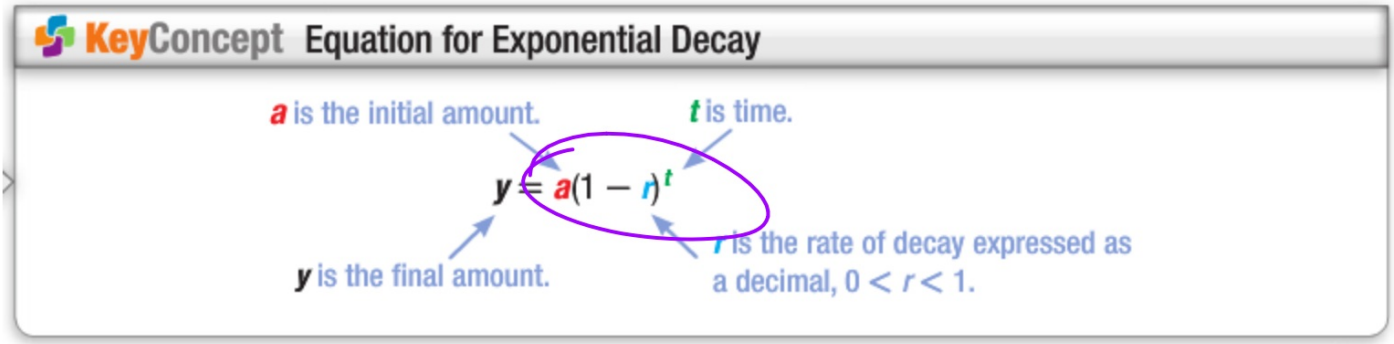
$A = P\left(1+\frac{r}{n}\right)^{nt}$

1 Exponential Growth The equation for the number of blogs is in the form $y = a(1 + r)^t$. This is the general equation for exponential growth.

KeyConcept Equation for Exponential Growth



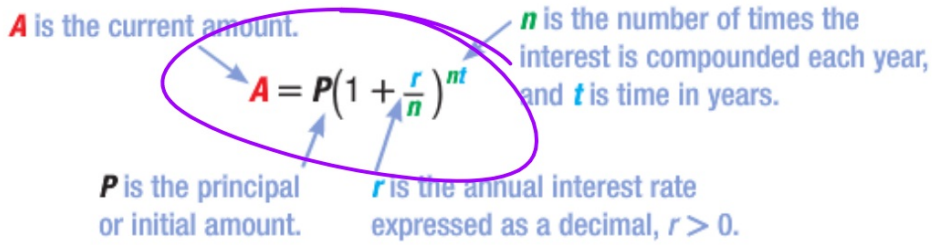
KeyConcept Equation for Exponential Decay



How are they the same? How are they different?

Compound interest is interest earned or paid on both the initial investment and previously earned interest. It is an application of exponential growth.

KeyConcept Equation for Compound Interest



Whiteboards

1. **SALARY** Ms. Acosta received a job as a teacher with a starting salary of $34,000. According to her contract, she will receive a 1.5% increase in her salary every year. How much will Ms. Acosta earn in 7 years?

$y = a(1+r)^t$

$= 34000(1+0.015)^t$

$= 34000(1+0.015)^7$

$= \$37734.72$

3. ENROLLMENT In 2000, 2200 students attended Polaris High School. The enrollment has been declining 2% annually.

a. Write an equation for the enrollment of Polaris High School t years after 2000.

b. If this trend continues, how many students will be enrolled in 2015?

a)

b)

6. **COINS** Camilo purchased a rare coin from a dealer for $300. The value of the coin increases 5% each year. Determine the value of the coin in 5 years.

10. INVESTMENTS Jin's investment of $4500 has been losing its value at a rate of 2.5% each year. What will his investment be worth in 5 years?