

## Basic Exponential Growth

Diagram illustrating the components of the Basic Exponential Growth formula:

$$A(t) = A_0(1 + r)^t$$

The variables are identified by colored boxes and arrows:

- $A(t)$  is identified by a purple box.
- $A_0$  is identified by a blue box.
- $r$  is identified by a red box.
- $t$  is identified by a green box.

## Basic Exponential Decay

Diagram illustrating the components of the Basic Exponential Decay formula:

$$A(t) = A_0(1 - r)^t$$

The variables are identified by colored boxes and arrows:

- $A(t)$  is identified by a purple box.
- $A_0$  is identified by a blue box.
- $r$  is identified by a red box.
- $t$  is identified by a green box.

Growth  $A(t) = A_0(1 + r)^t$

$A(t) = A_0(1 - r)^t$  Decay

In 1990, there were 4,500 students at Brooks High School. If the number of students increased by 1.5% each year, how many students were at Brooks High School in...

1997?

2006?

Growth  $A(t) = A_0(1 + r)^t$

$A(t) = A_0(1 - r)^t$  Decay

You purchase a new car for \$22,000. Each year the value of the car decreases by 13%.  
What is the value of your car after...

4 years?

6 years?

Growth  $A(t) = A_0(1 + r)^t$        $A(t) = A_0(1 - r)^t$  Decay

The population of a small city grew exponentially from 1986 to 2008. If the population in 1986 was 15,500 and in 2008 the population was 45,300, what was the growth rate for this small town?

Exponential Growth

$$A(t) = A_0(1 + r)^t$$

Exponential Decay

$$A(t) = A_0(1 - r)^t$$