

Math-3A Lesson 1-9 VOCABULARY (Exponential Modeling)

Mathematical Modeling: using an equation to represent the relationship between (real world) quantities for a given situation.

Quantity: a category of measurements in the real world.

Examples of quantities: Height, Weight, Temperature

Unit of Measure: the unit that is used to measure a quantity.

Examples of units of measure:
(Height) → inches, feet, miles
(Weight) → pounds, kilograms
(Temperature) → degrees Fahrenheit or Celsius

Rate: the change of one quantity compared to the change in another quantity using a fraction.

Rate: (a ratio of quantities) becomes a new quantity.

$$\frac{\Delta y}{\Delta x} = \text{slope} \quad (\text{pure mathematics})$$

$$\frac{\Delta \text{temp}}{\Delta \text{time}} = \text{heatup/cooldown rate} \quad (\text{applied mathematics})$$

Compound Interest → the “rent” for borrowed money is paid out more frequently than at the end of the year.

“Compounding period” → the number of times the bank pays you each year.

“A bank pays 3% per year compounded monthly.”

$$A(t) = A_0(1 + 0.03/12)^{12*t}$$