Exponential Growth and Decay Functions

Today's Standard

HSF.IF.C8b - Use the properties of exponents to interpret expressions for exponential functions. For example, identify percent rate of change in functions such as y = (1.02)^t, y = (0.97)^t, y = (1.01)12^t, y = (1.2)^t/10, and classify them as representing exponential growth or decay.

Cues	Notes
Exponential function	Exponential functions have the form y = a * b^t.
Growth vs. decay	If b > 1, the function represents growth; if 0 < b < 1, it represents decay.
Rate of change	The base (b) determines the type of function, while the exponent (t) affects the rate of change.
Base of exponent	
	Examples: y = (1.02)^t (growth), y = (0.97)^t (decay).
Real-world applications	
	Applications in population growth, radioactive decay, finance, and epidemiology.

Summary

Exponential functions can represent growth or decay depending on the base. Understanding these functions is crucial for analyzing various real-world phenomena.