Backer Breaks It Down: **Non-Continuous vs. Continuous Exponential Functions**

	Non-Continuous	Continuous
Function Formula	$Q = a(b)^t$	$Q = ae^{kt}$
Growth	$b = 1 + r$	$k = +r$
Decay	$b = 1 - r$	$k = -r$
Compound Interest	$B = P\left(1 + \frac{r}{n}\right)^{nt}$	$B = Pe^{rt}$
Effective Rate	$APY = \left[\left(1 + \frac{r}{n}\right)^{n} - 1\right] \times 100\%$	$APY = [e^{r} - 1] \times 100\%$
Convert	$b = e^{k}$	$k = \ln b$
Rate Rule	$(b - 1) \times 100\%$	$k \times 100\%$
Doubling Time	$2 = (b)^t \rightarrow 2 = (1 + r)^t$	$2 = e^{kt}$
Half-Life	$\frac{1}{2} = (b)^t \rightarrow \frac{1}{2} = (1 - r)^t$	$\frac{1}{2} = e^{-kt}$
Other	$b = \left(\frac{y_2}{y_1}\right)^{\frac{1}{x_2 - x_1}}$	