

Exponential Models in the Real World

Exponential Growth	Compound Interest	Exponential Decay	Half- Life
$y = a(1 + r)^t$ $y =$ _____ $a =$ _____ $r =$ _____ $t =$ _____	$A = P\left(1 + \frac{r}{n}\right)^{nt}$ $A =$ _____ $P =$ _____ $r =$ _____ $n =$ _____ $t =$ _____	$y = a(1 - r)^t$ $y =$ _____ $a =$ _____ $r =$ _____ $t =$ _____	$y = a\left(\frac{1}{2}\right)^t$ $y =$ _____ $a =$ _____ $t =$ _____
<p>Iyana Bradley’s mother Breyawna decided to invest in art and bought a painting from a local artist that was increasing in value at a rate of 7%. Its value in 2018 was \$200. Write an exponential model to represent her investment then find what the value of the painting will be in 2025.</p>	<p>Christopher Vasquez-Vega has an economics project where he has to invest in the stock market. He decides to invest in Sirius Radio for \$10 a share and buys 3 shares. The stock will appreciate by a rate of .85% compounded monthly. How much will Christopher’s stock be worth in 1 school year?</p>	<p>Jennifer Zevallos has been doing so well in school, her parents told her they would buy her a used two door red Jeep Wrangler for \$10,000. The value of the Jeep will depreciate at 31.5% each year. What will the value of the Jeep be in 5 years?</p>	<p>The half-life of caffeine is 5 hours. Find the amount of caffeine left from 200mg after 25 hours.</p>
<p>Andres Torres decides to open a savings account to buy the new PS5 coming in December of 2021 for \$500. He opens the account with \$50 with a 4.75% annual interest. If not additional money was deposited or withdrawn, how much money will Andres have in 2 years? Will he have enough?</p>	<p>Katalina Tidwell and her sister Alessandra Tidwell decide to invest in Ulta stock for the same econ project. They had to borrow money from their parents and invested \$263. The stock appreciates at 5.5% compounded quarterly. How much money will they have in 3 years if they decide to keep the stock past high school?</p>	<p>Camden Stone’s parents want to buy him a new truck upon graduation in the year 2022. If he buys a Ford F150 for \$30,000 in 2022 and the depreciation rate is 81.5% what will the truck be worth after Camden graduates from college in 2026?</p>	<p>Bismuth-214 has a half-life of approximately 20 minutes. Find the amount of bismuth-214 left from a 30g sample after 1 hour. Bismuth is a main ingredient in Pepto Bismol.</p>