Exponential Growth and Decay Functions

Exponential Growth Model:

*y = c ( 1 + r)* *t*

c = initial amount

r = growth rate as a decimal

t = time

“( 1 + r)” is called the growth factor.

Example 1: A newly hatched catfish weighs about 0.06 grams. During the first 6 weeks of life, its weight increases by about 10% each day. How much would it weigh after 6 weeks?

Convert: 6 weeks = \_\_\_\_ days

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Compound Interest:

*A = P ( 1 + r )t*

A = Account Balance

P = Principal (Original Amount)

r = rate as a decimal

t = time

Example 2: You will deposit $500 in an account that pays 8% interest compounded annually. What will the account balance be after 6 years?

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Exponential Decay Model:

*y = c ( 1 - r)* *t*

Example 3: You bought a car for $16,000. You expect the care to lose value, or depreciate, at a rate of 12% per year. How much will it be worth in 3 years?

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Example 4: You bought a car 4 years ago. It has been depreciating at a rate of 10% per year. Right now the car is worth $6,528. How much was it worth when you bought it?