iXL X.3

Types of Problems

- Bacteria
- Population
- Radioactive Decay
- Exponential Growth/Decay

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Solving problems involving bacteria, population, or radioactive decay.

MAKE A TABLE!

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Time	Population, Bacteria, or Grams
0	(starting value)
(growth or decay time)	

iXL X.3 Example

How much of a radioactive kind of argon will be left after 4 hours if you start with 80 grams and the half-life is 2 hours?

☐ grams

Time	Grams
0	80 (starting value)
2 (half-life)	40
4	20

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Solving problems
involving exponential growth/decay.

DETERMINE IF IT IS INCREASING, DECREASING, OR ASKING FOR THE INTEREST!

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Exponential Growth - Increasing

starting value $(1 + \%)^t$

iXL X.3 Example

Exponential Growth - Increasing

Lester has $10 in a savings account. The interest rate is 10%, compounded annually.

To the nearest cent, how much will he have in 2 years?

$

starting value $(1 + \%)^t$

$10\ (1 + .10)^2$

$10\ (1.10)^2$

$10\ (1 + .10)^2$

$12.10 total after 2 years.

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Exponential Decay - Decreasing

starting value $(1 - \%)^t$

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Exponential Decay - Decreasing

Whitney just drank a cup of coffee to help her stay awake. The coffee had 95 milligrams of caffeine in it. If her body processes 15% of the caffeine every hour, how much will be left in 3 hours?

If necessary, round your answer to the nearest tenth.

[ ] milligrams

starting value $(1 - \ \%)^t$

$95\ (1 - \ .15)^3$

$95\ (.85)^3$

58.3 milligrams

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Compound Interest - Interest ONLY

interest = starting value $(1 + \%)^t$ - starting value

iXL X.3 Example

Compound Interest - Interest ONLY

Layla has $90 in a savings account that earns 10% interest, compounded annually.

To the nearest cent, how much interest will she earn in 2 years?

$ ____

starting value $(1 + \%)^t$

$90 (1 + .10)^2$

$90 (1.10)^2$

$90 (1 + .10)^2$

$108.90 total after 2 years.

Find the interest.

$108.90 total

- $90 original

= $18.90 interest

$18.90 interest earned.