

## Uninhibited Growth and Decay

The diagram shows the formula  $A(t) = A_0 e^{k \cdot t}$  with four colored boxes and arrows pointing to specific parts:

- A blue box points to  $A(t)$ .
- A red box points to  $A_0$ .
- A purple box points to  $t$ .
- A green box points to  $k$ .

$$A(t) = A_0 e^{k \cdot t} \quad \text{Uninhibited Growth and Decay}$$

A certain bacteria grows according to the law of uninhibited growth with the function  $A(t) = 75e^{0.05 \cdot t}$ , where  $A(t)$  is measured in **grams** and  $t$  is measured in **days**.

What is the **growth rate** for the bacteria?

What is the **initial amount** of the bacteria?

## $A(t) = A_0 e^{k \cdot t}$ Uninhibited Growth and Decay

A certain bacteria grows according to the law of uninhibited growth with the function  $A(t) = 75e^{0.05 \cdot t}$ , where  $A(t)$  is measured in grams and  $t$  is measured in days.

How many grams of bacteria are present after 12 days?

How long will it take for the bacteria to reach 405 grams?

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How long will it take for the bacteria to double in size?

How long will it take for the bacteria to triple in size?

## $A(t) = A_0 e^{k \cdot t}$ Uninhibited Growth and Decay

If the number of cells of a bacteria **doubles** every **5 hours**, find the **growth rate** of the bacteria.

How **long** will it take for the bacteria to **triple** in size?