



Determine the initial value of an exponential function

1

What is the time in this equation for a monthly compounding growth of money in a savings account?

$$712 = 500 \cdot (1 + 0.04)^{(9)}$$

A

$$t = 711$$

B

$$t = 9$$

2

Which scenario describes this equation?

$$460 = 500 \cdot (1 - 0.04)^{(2)}$$

A

A charitable endowment starts with \$500. Each weekly it disburses 2% of its remaining funds. After 4 weeks its funds have decreased to \$460.

B

A charitable endowment starts with \$500. Each weekly it disburses 4% of its remaining funds. After 2 weeks its funds have decreased to \$460.

3

What is the value of the final cash given this model of a monthly compounding growth of money in a savings account?

$$P = 200 \cdot (1 + 0.06)^{(3)}$$

A

$$P = 238$$

B

$$P = 175$$

C

$$P = 245$$

D

$$P = 220$$

4

What is the starting population in this equation for a continuous growth of an insect population?

$$376 = 200 \cdot e^{(0.09 \cdot 7)}$$

A

$$P_0 = 200$$

B

$$P_0 = 375$$

C

$$P_0 = 9$$

D

$$P_0 = 7$$

5

Which scenario describes this equation?

$$1,200 = 800 \cdot (1 + 0.07)^{(6)}$$

A

An insect population starts at 700. Each subsequent yearly breeding season it grows by 8%. After 6 years it has increased to a population of 1,200.

B

An insect population starts at 800. Each subsequent yearly breeding season it grows by 7%. After 6 years it has increased to a population of 1,200.

6

What does this term represent in a model of growth of an insect population that breeds once per year?

$$P = P_0 \cdot (1 + r)^{(t)}$$

$$t = ?$$

A

$$t = \text{time}$$

B

$$t = \text{starting population}$$

C

$$t = \text{final population}$$

D

$$t = \text{rate}$$

7

In this model of decline of a whale population (yearly breeding cycle), which term represents the final population?

$$P = P_0 \cdot (1 - r)^{(t)}$$

final population = ?

A

$$t$$

B

$$r$$

C

$$F$$



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8

Which scenario describes this equation?

$$381 = 300 \cdot e^{(0.04 \cdot 6)}$$

A An insect population starts at 300. It grows continuously at 4% growth per year. After 6 years it has increased to a population of 381.

B An insect population starts at 300. It grows continuously at 6% growth per year. After 4 years it has increased to a population of 381.

9

In this model of continuous exponential growth of social media post views, which term represents the final views?

$$V = V_0 \cdot e^{(rt)}$$

final views = ?

A

 t

B

 V **10**

Which scenario describes this equation?

$$490 = 400 \cdot (1 + 0.07)^{(3)}$$

A An insect population starts at 300. Each subsequent yearly breeding season it grows by 7%. After 4 years it has increased to a population of 490.

B An insect population starts at 400. Each subsequent yearly breeding season it grows by 7%. After 3 years it has increased to a population of 490.

11

What does this term represent in a model of growth of a rabbit population (yearly breeding cycle)?

$$P = P_0 \cdot (1 + r)^{(t)}$$

$r = ?$

A

 $r = \text{final population}$

B

 $r = \text{rate}$

C

 $r = \text{time}$ **12**

In this model of decline of a whale population (yearly breeding cycle), which term represents the rate?

$$P = P_0 \cdot (1 - r)^{(t)}$$

rate = ?

A

 P_0

B

 r

C

 t