



Interpret parameters in exponential and logarithmic models

1

What does the logarithm equation mean?

$$\log_3 81 = ?$$

A

What number would you raise 3 by to result in 81?

B

What number would you raise 81 by to result in 3?

2

To result in 100, you would raise 10 to the power of 2

A

$$\log_{10} 100 = 2$$

B

$$\log_2 10 = 100$$

C

$$\log_{100} 2 = 10$$

3

Convert the given exponent to the equivalent in logarithm form

$$4^3 = 64$$

A

$$\log_3 64 = 4$$

B

$$\log_{64} 4 = 3$$

C

$$\log_{64} 3 = 4$$

D

$$\log_4 64 = 3$$

4

Convert the given logarithm to the equivalent in exponent form

$$\log_8 64 = 2$$

A

$$2^8 = 64$$

B

$$64^8 = 2$$

C

$$8^2 = 64$$

D

$$2^{64} = 8$$

5

What does the logarithm equation mean?

$$\log_e x = 2.33$$

A

To result in x , you would raise e to the power of 2.33

B

To result in e , you would raise 2.33 to the power of x **6**

Convert the given logarithm to the equivalent in exponent form

$$\log_e 2.66 = x$$

A

$$e^x = 2.66$$

B

$$x^{2.66} = e$$

C

$$2.66^e = x$$

D

$$x^e = 2.66$$

7

What is the value of the final concentration given this model of a continuous reduction of a toxin concentration?

$$C = 900 \cdot e^{(-0.06 \cdot 5)}$$

A

$$C = 925$$

B

$$C = 900$$

C

$$C = 895$$

D

$$C = 666$$

8

Which scenario describes this equation?

$$592 = 800 \cdot e^{(-0.06 \cdot 5)}$$

A

A bird population starts at 600. It declines continuously at 8% per year. After 5 years it has decreased to a population of 592.

B

A bird population starts at 800. It declines continuously at 6% per year. After 5 years it has decreased to a population of 592.



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9

Which scenario describes this equation?

$$723 = 800 \cdot e^{(-0.05 \cdot 2)}$$

- A A bacteria population starts at 200. It declines continuously at 5% per year. After 8 years it has decreased to a population of 723 bacteria.
- B A bacteria population starts at 800. It declines continuously at 5% per year. After 2 years it has decreased to a population of 723 bacteria.

10

Which scenario describes this equation?

$$361 = 400 \cdot e^{(-0.02 \cdot 5)}$$

- A A bacteria population starts at 400. It declines continuously at 2% per day. After 5 days it has decreased to a population of 361 bacteria.
- B A bacteria population starts at 500. It declines continuously at 2% per day. After 4 days it has decreased to a population of 361 bacteria.

11

Which scenario describes this equation?

$$211 = 300 \cdot e^{(-0.07 \cdot 5)}$$

- A A radioactive material starts at an isotope concentration of 500ppm. It decays continuously at 7% per day. After 3 days it has decayed to an isotope concentration of 211ppm.
- B A radioactive material starts at an isotope concentration of 300ppm. It decays continuously at 7% per day. After 5 days it has decayed to an isotope concentration of 211ppm.

12

Which scenario describes this equation?

$$314 = 400 \cdot e^{(-0.03 \cdot 8)}$$

- A A radioactive material starts at an isotope concentration of 800ppm. It decays continuously at 3% per day. After 4 days it has decayed to an isotope concentration of 314ppm.
- B A radioactive material starts at an isotope concentration of 400ppm. It decays continuously at 3% per day. After 8 days it has decayed to an isotope concentration of 314ppm.