

Use logarithms to solve exponential equations

1

What does the logarithm equation mean?

$$\log_4 16 = ?$$

A

What number would you raise 4 by to result in 16?

B

What number would you raise 16 by to result in 4?

2

Convert the given exponent to the equivalent in logarithm form

$$5^2 = 25$$

A

$$\log_{25} 5 = 2$$

B

$$\log_5 25 = 2$$

C

$$\log_2 5 = 25$$

D

$$\log_{25} 2 = 5$$

3

Convert the given logarithm to the equivalent in exponent form

$$\log_3 9 = 2$$

A

$$9^2 = 3$$

B

$$3^2 = 9$$

C

$$2^3 = 9$$

D

$$2^9 = 3$$

4

Solve the following logarithm

$$\log_5 25 = x$$

A

$$x = 3$$

B

$$x = 1$$

C

$$x = 0$$

D

$$x = 4$$

E

$$x = 2$$

5

Use a logarithm to solve for the missing exponent

$$7^x = 49$$

A

$$x = 1$$

B

$$x = 2$$

C

$$x = 3$$

D

$$x = 0$$

E

$$x = 4$$

6

Convert the given exponent to the equivalent in logarithm form

$$8^2 = 64$$

A

$$\log_{64} 8 = 2$$

B

$$\log_2 8 = 64$$

C

$$\log_{64} 2 = 8$$

D

$$\log_8 64 = 2$$

7

Convert the given logarithm to the equivalent in exponent form

$$\log_7 250 = 2.84$$

A

$$250^{2.84} = 7$$

B

$$250^7 = 2.84$$

C

$$7^{2.84} = 250$$

D

$$2.84^7 = 250$$

8

Convert the given logarithm to the equivalent in exponent form

$$\log_4 32 = 2.5$$

A

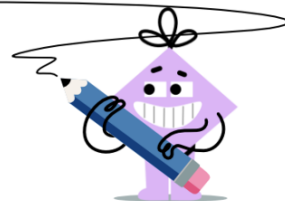
$$4^{2.5} = 32$$

B

$$32^4 = 2.5$$

C

$$32^{2.5} = 4$$



Use logarithms to solve exponential equations

9

Solve the following logarithm

$$\log_3 112.62 = x$$

A $x = 3.3$

B $x = 4.3$

C $x = 6.3$

D $x = 5.3$

E $x = 2.3$

10

Simplify and solve for p

$$\log_2(2p - 8) = 5$$

A $p = 21$

B $p = 19$

C $p = 22$

D $p = 20$

11

Use the power rule to simplify this equation

$$3^{(9x+7)} = 7^{(3x)}$$

A $(9x + 7) \ln 3 = (3x) \ln 7$

B $(7x + 9) \ln 3 = (2x + 3) \ln 7$

C $(9x - 7) \ln 3 = (3x - 2) \ln 7$

12

Use the power rule to simplify this equation

$$8^{(-1q+6)} = 4^{(-9q-5)}$$

A $(-1q - 6) \ln 8 = (-9q + 5) \ln 4$

B $(6q - 1) \ln 8 = (-5q - 9) \ln 4$

C $(-1q + 6) \ln 8 = (-9q - 5) \ln 4$

13

Use the power rule to simplify this and solve for 'w'

$$6^{(w+2)} = 7^{(w)}$$

A $w = \frac{-2 \ln 6}{\ln 6 - \ln 7}$

B $w = \frac{\ln 7 - \ln 6}{2 \ln 6 - 2 \ln 7}$

C $w = \frac{-2 \ln 7}{\ln 7 - \ln 6}$

14

Use a logarithm to solve for the missing exponent

$$3^x = 447$$

A $x = 5.55$

B $x = 4.55$

C $x = 7.55$

D $x = 6.55$

E $x = 3.55$

15

Use a logarithm to solve for the missing exponent

$$2^x = 11.31$$

A $x = 2.5$

B $x = 4.5$

C $x = 1.5$

D $x = 3.5$

E $x = 5.5$

16

Use the power rule to simplify this and solve for 'x'

$$8^{(x-8)} = 5^{(x-6)}$$

A $x = \frac{-6 \ln 8 + 8 \ln 5}{\ln 5 - \ln 8}$

B $x = \frac{-6 \ln 5 + 8 \ln 8}{\ln 8 - 1 \ln 5}$

C $x = \frac{\ln 5 - \ln 8}{-8 \ln 8 + 6 \ln 5}$