ALGEBRA 2: QUIZ SOLUTIONS

Question 1

Which one of the following expressions is defined?

A. $\log_3 0 = x$ B. $\log_1 5 = x$ C. $\log_{-5} 10 = x$ D. $\log_3 x = -10$

Solution

If $y = \log_b x$, the function is defined if $b > 0$, $b \neq 1$, $x > 0$.

A. $\log_3 0 = x$

$\therefore 3^x = 0$

Undefined

B. $\log_1 5 = x$

$\therefore 1^x = 5$

Undefined

C. $\log_{-5} 10 = x$

$\therefore (-5)^x = 10$

Undefined

D. $\log_3 x = -10$

$\therefore 3^{-10} = x$

Defined

So, the correct answer is D.

Question 2

Without using a calculator, evaluate $\log_5 25$.

A. 1 B. 2 C. 5 D. 125

Solution

Let $y = \log_5 25$

$\therefore 5^y = 25 = 5^2$

$\therefore y = 2$

So, the correct answer is B.

Question 3

Without using a calculator, evaluate $\log_9 \sqrt{81}$.

A. 1 B. 2 C. 3 D. 9

Solution

Let $y = \log_9 \sqrt{81}$

$= \log_9 9$

$= 1$

So, the correct answer is A.

Question 4

Use a calculator to evaluate $\log 0,27$ to 4 decimal places.

A. 1,4314 B. 0,7157 C. -0,5686 D. -1,3093

Solution

$\log 0,27 = -0,5686362358$

$= -0,5686$ to 4 decimal places.

So, the correct answer is C.

Question 5

Use a calculator to evaluate $\log 33 \times \log 0,32$ to 4 decimal places.

A. -3,9840 B. -0,7514 C. 0,3039 D. 1,6961

Solution

$\log 33 \times \log 0,32 = -0,7514366561$

$= -0,7514$ to 4 decimal places.

So, the correct answer is B.