NEBRASKA ALGEBRA 2 · UNIT 3 · 25 QUESTIONS

Exponential, Logarithmic, and Trigonometric Functions — Practice Test

This practice test was made by AI and there may be mistakes. If a question or answer looks wrong, use the Flag a mistake button to let Brett know so he can fix it.

1 **The value of 3^4 is**

- **A** 81
- **B** 64
- **C** 27
- **D** 12

Understand It with Pulse | Flag a mistake

2 **The value of $\log_3 81$ is**

A 9

B 4

C 27

D 3

Understand It with Pulse | Flag a mistake

3 **The value of $\log_2 (8 \cdot 4)$ is**

ANSWER _____

Understand It with Pulse | Flag a mistake

4 **An expanded form of $\log(x^2 y)$ is**

- **A** $2\log x - \log y$
- **B** $\log x \cdot \log y$
- **C** $2\log x + \log y$
- **D** $\log x + 2\log y$

Understand It with Pulse | Flag a mistake

5 **The expression $2\log x - \log y$ is equivalent to**

- **A** $\log(2x - y)$
- **B** $\log(x^2 + y)$
- **C** $\log\left(\frac{x^2}{y}\right)$
- **D** $\log\left(\frac{x}{y^2}\right)$

Understand It with Pulse | Flag a mistake

6 The solution of $\log_2 x = 4$ is

- A 8
- B 16
- C 2
- D 64

Understand It with Pulse | Flag a mistake

7 The solution of $2^x = 64$ is

- A 6
- B 32
- C 5
- D 8

Understand It with Pulse | Flag a mistake

8 **A population of 500 doubles every year. After 3 years, the population is**

ANSWER

Understand It with Pulse | Flag a mistake

9 **A sample of 800 grams has a half-life of 10 years. After 20 years, the mass remaining, in grams, is**

A 100

B 600

C 400

D 200

Understand It with Pulse | Flag a mistake

10 The exact value of $\sin(\frac{\pi}{6})$ is

- A 1
- B $\frac{\sqrt{3}}{2}$
- C $\frac{1}{2}$
- D $\frac{\sqrt{2}}{2}$

Understand It with Pulse | Flag a mistake

11 The exact value of $\cos(\frac{\pi}{3})$ is

- A $\frac{1}{2}$
- B $\frac{\sqrt{3}}{2}$
- C 1
- D 0

Understand It with Pulse | Flag a mistake

12 The exact value of $\tan(\frac{\pi}{4})$ is

- A $\frac{\sqrt{3}}{3}$
- B $\sqrt{3}$
- C 1
- D 0

Understand It with Pulse | Flag a mistake

13 An angle of 120°, in radians, is

- A $\frac{3\pi}{4}$
- B $\frac{\pi}{3}$
- C $\frac{2\pi}{3}$
- D $\frac{5\pi}{6}$

Understand It with Pulse | Flag a mistake

14 **A sector has radius 6 and central angle 2 radians. Its arc length is**

- A 36
- B 3
- C 8
- D 12

Understand It with Pulse | Flag a mistake

15 **The period of y = sin(2x) is**

- A 2π
- B π
- C $\pi/2$
- D 4π

Understand It with Pulse | Flag a mistake

16 **The amplitude of y = 3cos x + 1 is**

A 4

B 3

C 2

D 1

Understand It with Pulse | Flag a mistake

17 **For y = 2sin x, the amplitude of the function is**

A 3

B π

C 1

D 2

Understand It with Pulse | Flag a mistake

18 Using $\sin^2 x + \cos^2 x = 1$, an expression for $\sin^2 x$ is

A $\dfrac{1}{\cos^2 x}$

B $1 + \cos^2 x$

C $\cos^2 x - 1$

D $1 - \cos^2 x$

Understand It with Pulse | Flag a mistake

19 The number of solutions of $\sin x = \dfrac{1}{2}$ on $0 \le x < 2\pi$ is

ANSWER _____

Understand It with Pulse | Flag a mistake

20 The smallest positive solution of $2\cos x - 1 = 0$ is

A $\frac{\pi}{6}$

B $\frac{\pi}{3}$

C $\frac{2\pi}{3}$

D $\frac{5\pi}{6}$

Understand It with Pulse | Flag a mistake

21 The solution of $\log x + \log(x - 1) = \log 6$, for $x > 1$, is

A $x = -2$

B $x = 3$

C $x = 6$

D $x = 2$

Understand It with Pulse | Flag a mistake

22 **An item worth 20000 dollars loses 10% of its value each year. After 2 years, its value, in dollars, is**

ANSWER _____

Understand It with Pulse | Flag a mistake

23 **The value of $\ln e^3$ is**

A 3

B 1

C e

D e^3

Understand It with Pulse | Flag a mistake

24 The value of $\log_5 125$ is

- A 15
- B 25
- C 5
- D 3

Understand It with Pulse | Flag a mistake

25 If $\sin\theta < 0$ and $\cos\theta > 0$, then θ is in Quadrant

- A I
- B II
- C III
- D IV

Understand It with Pulse | Flag a mistake

ANSWER KEY

1. A
2. B
3. 5
4. C
5. C
6. B
7. A
8. 4000
9. D
10. C
11. A
12. C
13. C
14. D
15. B
16. B
17. D
18. D
19. 2
20. B
21. B
22. 16200
23. A
24. D
25. D

© 2026 Brett Robbins. All Rights Reserved.