

SINH

Thời gian: **Không giới hạn** | Số câu: **15**

Họ và tên thí sinh: _____
Lớp / Đơn vị: _____

Số báo danh: _____
Ngày thi: _____

1. What is the sinh function?

- A. A hyperbolic trigonometric function
- B. A logarithmic function
- C. An exponential function
- D. A quadratic function

2. What is the derivative of $\sinh(x)$?

- A. $\cos(x)$
- B. $\cosh(x)$
- C. $\sin(x)$
- D. $\tanh(x)$

3. What is the inverse of $\sinh(x)$?

- A. $\sinh^{-1}(x)$
- B. $\cosh(x)$
- C. $\tanh(x)$
- D. $\operatorname{sech}(x)$

4. What is the identity for $\sinh(2x)$?

- A. $2\sinh(x)\cosh(x)$
- B. $2\sinh(x)\sinh(x)$
- C. $2\cosh(x)\cosh(x)$
- D. $2\sinh(x)$

5. What is $\sinh(0)$?

- A. 1
- C. Undefined
- D. -1

6. What is the integral of $\sinh(x)$?

- A. $-\cosh(x) + C$
- B. $\cosh(x) + C$
- C. $\sinh(x) + C$
- D. $-\sinh(x) + C$

7. What is $\sinh(-x)$?

- A. $-\sinh(x)$
- B. $\sinh(x)$
- C. $-\cosh(x)$
- D. $\cosh(x)$

8. What is $\sinh(x)$ for large values of x ?

- A. Approaches infinity
- B. Approaches 1
- C. Approaches 0
- D. Approaches -infinity

9. What is the relationship between $\sinh(x)$ and e^x ?

- A. $\sinh(x) = (e^x - e^{-x})/2$
- B. $\sinh(x) = (e^x + e^{-x})/2$
- C. $\sinh(x) = e^x$
- D. $\sinh(x) = e^{-x}$

10. Is $\sinh(x)$ an even or odd function?

- A. Even
- B. Odd
- C. Neither
- D. Both

11. What is the range of $\sinh(x)$?

- A. $(-1, 1)$
- B. $(0, \infty)$
- C. $(-\infty, \infty)$
- D. $(1, \infty)$

12. What is the \sinh of the sum of two angles?

- A. $\sinh(a + b) = \sinh(a)\cosh(b) + \cosh(a)\sinh(b)$
- B. $\sinh(a + b) = \sinh(a)\sinh(b) + \cosh(a)\cosh(b)$
- C. $\sinh(a + b) = \sinh(a)\sinh(b)$
- D. $\sinh(a + b) = \cosh(a)\cosh(b)$

13. What is the limit of $\sinh(x)/x$ as x approaches 0?

- A. Infinity
- B. 1
- C. Undefined
- D. Undefined

14. What is the series expansion of $\sinh(x)$?

- A. $x - x^3/3! + x^5/5! - x^7/7! + \dots$
- B. $x + x^2/2! + x^3/3! + x^4/4! + \dots$
- C. $x + x^3/3! + x^5/5! + x^7/7! + \dots$
- D. $x - x^2/2! + x^3/3! - x^4/4! + \dots$

15. What is the area under the curve of $\sinh(x)$ from 0 to a ?

- A. $\cosh(a) - 1$
- B. $\sinh(a) - 1$
- C. $\cosh(a)$
- D. $\sinh(a)$

ĐÁP ÁN

Câu 1	Câu 2	Câu 3	Câu 4	Câu 5	Câu 6	Câu 7	Câu 8	Câu 9	Câu 10
A	B	A	A	B	B	A	A	A	B
Câu 21		Câu 22		Câu 23		Câu 24		Câu 25	
C		A		B		A		A	

Gợi ý / Giải thích:

Câu 1: Sinh is related to the exponential function

Câu 2: The derivative is another hyperbolic function

Câu 3: Inverse usually denoted with a -1

Câu 4: This is a double angle identity

Câu 5: Think about the graph of $\sinh(x)$

Câu 6: Integral is the anti-derivative

Câu 7: Sinh is an odd function

Câu 8: Sinh function grows exponentially for large x

Câu 9: Sinh function can be expressed in terms of exponential function

Câu 10: An odd function has symmetry about the origin

Câu 11: Sinh function can take any real value

Câu 12: This is a sum formula for sinh

Câu 13: Use L'Hopital's rule

Câu 14: Sinh series expansion involves odd powers of x

Câu 15: This is the integral of $\sinh(x)$ from 0 to a