

## Calculus AB Flashcards PDF

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What is the derivative of  $\sin(x)$ ?

The derivative of  $\sin(x)$  is  $\cos(x)$ .

What is the integral of  $1/x$ ?

The integral of  $1/x$  is  $\ln|x| + C$ , where  $C$  is the constant of integration.

What is the limit of  $(1/x)$  as  $x$  approaches infinity?

The limit of  $(1/x)$  as  $x$  approaches infinity is  $0$ .

What is the Fundamental Theorem of Calculus?

The Fundamental Theorem of Calculus states that if  $F$  is an antiderivative of  $f$  on an interval  $[a, b]$ , then  $\int_a^b f(x) dx = F(b) - F(a)$ .

What is the derivative of  $e^x$ ?

The derivative of  $e^x$  is  $e^x$ .

What is the power rule for differentiation?

The power rule states that if  $f(x) = x^n$ , then  $f'(x) = n \cdot x^{(n-1)}$ .

What is the second derivative test used for?

The second derivative test is used to determine whether a critical point is a local maximum, local minimum, or saddle point.

What is the area under the curve  $y = x^2$  from  $x = 0$  to  $x = 1$ ?

The area under the curve  $y = x^2$  from  $x = 0$  to  $x = 1$  is  $1/3$ .

What is a limit?

A limit is a value that a function approaches as the input approaches some value.

What is the chain rule?

The chain rule states that if you have a composite function  $f(g(x))$ , then the derivative is  $f'(g(x)) \cdot g'(x)$ .