

Things to know

1. The Derivative is the

(a) _____.

(b) _____.

2. To find the derivative we take the

_____.

3. If the derivative is positive then the function is _____.

4. If the derivative is negative then the function is _____.

5. If the second derivative is positive then the function is _____,
and the first derivative is _____.

6. If the second derivative is negative then the function is _____,
and the first derivative is _____.

7. Critical Points of the function are points where the first derivative is

_____.

8. Possible Inflection Points of the function are points where the second derivative is

_____.

9. In order to find local minima and maxima you need to find the

and, if there are any, check the

_____.

10. To check critical points you need to use the

or the

_____.

11. The Definite Integral of a continuous function on an interval is the

(a) _____.

(b) _____.

12. If the function is always positive then the definite integral is equal to

_____.

13. According to the Fundamental Theorem of Calculus, the definite integral of a continuous function on an interval is equal to

_____.

14. The Indefinite Integral is the

_____.

Formulas

Derivatives:

1. $\frac{d}{dx}k =$ _____

8. $\frac{d}{dx}x^n =$ _____

2. $\frac{d}{dx}kf(x) =$ _____

9. $\frac{d}{dx}\sin(x) =$ _____

3. $\frac{d}{dx}f(x) \pm g(x) =$ _____

10. $\frac{d}{dx}\cos(x) =$ _____

4. $\frac{d}{dx}f(x) \cdot g(x) =$ _____

11. $\frac{d}{dx}\tan(x) =$ _____

5. $\frac{d}{dx}\frac{f(x)}{g(x)} =$ _____

12. $\frac{d}{dx}\sec(x) =$ _____

6. $\frac{d}{dx}f(g(x)) =$ _____

13. $\frac{d}{dx}\csc(x) =$ _____

7. $\frac{d}{dx}x =$ _____

14. $\frac{d}{dx}\cot(x) =$ _____

15. $\frac{d}{dx} e^x = \underline{\hspace{2cm}}$

17. $\frac{d}{dx} \ln(x) = \underline{\hspace{2cm}}$

16. $\frac{d}{dx} a^x = \underline{\hspace{2cm}} \quad a > 0$

18. $\frac{d}{dx} \log_a(x) = \underline{\hspace{2cm}} \quad a > 0$

Integrals:

1. $\int kf(x) dx = \underline{\hspace{2cm}}$

2. $\int f(x) \pm g(x) dx = \underline{\hspace{2cm}}$

3. $\int_a^a f(x) dx = \underline{\hspace{2cm}}$

4. $-\int_a^b f(x) dx = \underline{\hspace{2cm}}$

5. $\int_a^b f(x) dx + \int_b^c f(x) dx = \underline{\hspace{2cm}}$

6. $\int k dx = \underline{\hspace{2cm}}$

12. $\int \csc^2(x) dx = \underline{\hspace{2cm}}$

7. $\int x^n dx = \underline{\hspace{2cm}}$

13. $\int \csc(x) \cot(x) dx = \underline{\hspace{2cm}}$

8. $\int \cos(x) dx = \underline{\hspace{2cm}}$

14. $\int e^x dx = \underline{\hspace{2cm}}$

9. $\int \sin(x) dx = \underline{\hspace{2cm}}$

15. $\int a^x dx = \underline{\hspace{2cm}}$

10. $\int \sec^2(x) dx = \underline{\hspace{2cm}}$

11. $\int \sec(x) \tan(x) dx = \underline{\hspace{2cm}}$

16. $\int \frac{1}{x} dx = \underline{\hspace{2cm}}$