



ST. LAWRENCE HIGH SCHOOL
A JESUIT CHRISTIAN MINORITY INSTITUTION



WORKSHEET-29
SUBJECT – MATHEMATICS
Final - Term

Chapter: Calculus

Class: XII

Topic: Miscellaneous

Date: 16.01.2021

Choose the correct option **(1 x 15=15)**

1. $\int e^{5 \log x} dx = ?$
 - a) $\frac{e^{5 \log x}}{5}$
 - b) $\frac{e^{5 \log x}}{5 \log x} + c$
 - c) $\frac{x^5}{5} + c$
 - d) $\frac{x^6}{6} + c$

2. If $\int \frac{dx}{x^2 - a^2} = k \log \left| \frac{x-a}{x+a} \right| + c$, then the value of k is -
 - a) $\frac{1}{a}$
 - b) $\frac{1}{2a}$
 - c) $2a$
 - d) None of these.

3. $\int \sin x^\circ dx$ is -
 - a) $\frac{\pi}{180} \cos x^\circ + c$
 - b) $\frac{180}{\pi} \cos x^\circ + c$
 - c) $-\frac{180}{\pi} \cos x^\circ + c$
 - d) $-\frac{\pi}{180} \cos x^\circ + c$

4. The value of $\int 2^{3x} dx = ?$

a) $\frac{2^x}{3\log 2}$

b) $\frac{2^{3x}}{3\log 2} + c$

c) $\frac{3 \times 2^{3x}}{\log 2} + c$

d) $3\log 2 \times 2^{3x} + c$

5. The value of $\lim_{x \rightarrow 2} \frac{\log(2x-3)}{2(x-2)} = ?$

a) $\frac{1}{4} \log_a e$, b) 1 , c) $\frac{1}{2}$, d) $\log_a e$

6. The value of $\lim_{x \rightarrow \infty} x^{\frac{3}{2}} (\sqrt{x^3 + 1} - \sqrt{x^3 - 1}) = ?$

a) 1 , b) 0 , c) e , d) -1

7. The value of $\lim_{x \rightarrow 0} (1 + 4x)^{\frac{x+2}{x}} = ?$

a) 1 , b) 0 , c) e^8 , d) Doesn't exit.

8. The value of $\lim_{x \rightarrow 0} \frac{e^{x^2} - 1}{x} = ?$

a) 1 , b) 0 , c) e^{-1} , d) Doesn't exit.

9. The value of $\lim_{x \rightarrow 1} \frac{\log x}{x-1} = ?$

- a) 1 , b) 0 , c) e , d) -1

10. The value of $\lim_{x \rightarrow 0} \frac{\log(1+4x)}{3x} = ?$

- a) 4 , b) 3 , c) $\frac{4}{3}$, d) $\frac{1}{12}$

11. The function $f(x) = |x|$ is –

- a) Continuous at all real values of x
- b) Discontinuous at $x=0$
- c) Continuous only at $x=0$
- d) None of these.

12. The function $f(x) = x - [x]$, where $[.]$ denotes the greatest integer function, is -

- a) Continuous everywhere.
- b) Continuous only at non-integral values of x.
- c) Continuous at all integral values of x.
- d) Differentiable everywhere.

13. The set of points where the function $f(x)$ given by $f(x) = |x - 3| \cos x$ is differentiable , is -

- a) $\mathbb{R}$
- b) $\mathbb{R} - \{3\}$
- c) $(0, \infty)$
- d) None of these.

14. Let the function $f(x) = |x|$. Then at $x = 0$ the function is -

- a) Not Continuous .
- b) Continuous but not differentiable
- c) Differentiable but not Continuous
- d) Differentiable and Continuous.

15. The point of discontinuities of the function $f(x) = \frac{x+2}{2x^2-x-1}$ are -

- a) $\frac{1}{2}, -1$, b) $-\frac{1}{2}, -1$, c) $-\frac{1}{2}, 1$, d) $\frac{1}{2}, 1$

Prepared by :-

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