# ST. LAWRENCE HIGH SCHOOL

A JESUIT CHRISTIAN MINORITY INSTITUTION

FOR GOD AND COUNTRY

## Worksheet-10

## SUBJECT – MATHEMATICS

**Pre-test**

**Chapter: Integration** **Class: XII**

**Topic: Indefinite Integral** **Date: 22.06.2020**

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

1. $\int x^n \, dx$ = ?
   a) $nx^{n-1}$
   b) $\frac{x^{n+1}}{n+1} + c$
   c) $\frac{x^{n+1}}{n+1} + c$ , When $n \neq -1$
   d) None of these.

2. If k is a constant, then the integral of k w.r.t x is –
   a) $\frac{k}{x} + c$
   b) $kx$
   c) kx+c
   d) $kx^2 + c$

3. If $\frac{dy}{dx} = 6x$ , $then\ y$ = ?
   a) 6
   b) $3x^2$
   c) $2x^2$
   d) $6x^2$

4. $\int \sec^3 x \operatorname{cosec}^2 x \, dx$ is a function of –
   a) $\tan x$
   b) $\sin x$
   c) $\cos x$
   d) $none\ of\ these.$

5. $\int \cot^2 x\, dx$ = ?
   a) $\cot x - x$
   b) $x - \cot x + c$
   c) $x + \cot x + c$
   d) $-x - \cot x + c$

6. To evaluate $\int \sin^2 x\, dx$ , we use the formulae of –
   a) $\sin 2x$
   b) $\cos 2x$
   c) $\tan 2x$
   d) *None of these*

7. $\int \sin x^\circ\, dx$ 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) $-\frac{\pi}{180}\cos x^\circ + c$

8. The value of $\int 2^{3x} dx$ = ?
   a) $\frac{2^{3x}}{3\log 2}$
   b) $\frac{2^{3x}}{3\log 2} + c$
   c) $\frac{3\times 2^{3x}}{\log 2} + c$
   d) $3\log 2 \times 2^{3x} + c$

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

10. $\int \frac{x^2+1}{x} dx$ = ?
   a) $\frac{1}{2}x^2 + \log|x| + c$
   b) $\frac{1}{2}x^2 + \log x + c$
   c) $x + \log|x| + c$
   d) $x^2 + \log|x| + c$

**11. If the derivative of a function is $\sqrt{x}$ , then the function is –**

a) $\frac{1}{2\sqrt{x}} + c$

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

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

d) $\frac{2}{3\sqrt{x}} + c$

**12. If $\frac{dy}{dx} = 3x^2 - 2$ , $then\ y$ = ?**

a) $x^3 - 2x + c$

b) $x^3 - 2x$

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

d) $x^3 - 2x^2 + c$

**13. If $m \neq 0$ , then $\int \sec mx \tan mx\, dx$ = ?**

a) $m \sec mx + c$

b) $m \tan mx + c$

c) $\frac{\sec mx}{m} + c$

d) $\frac{\tan mx}{m} + c$

**14. $\int \frac{2-3\sin x}{\cos^2 x} dx$ = ?**

a) $2\tan x - 3\sec x + c$

b) $\tan x - 3\sec x + c$

c) $2\tan x - \sec x + c$

d) $3\tan x - 2\sec x + c$

**15. $\int \frac{x}{\sqrt{x}+1} dx$ = ?**

a) $\frac{2}{3}x^{\frac{3}{2}} - x + 2x^{\frac{1}{2}} + 2\log\left|\sqrt{x}+1\right| + c$

b) $\frac{2}{3}x^{\frac{3}{2}} + 2x^{\frac{1}{2}} + 2\log\left|\sqrt{x}+1\right| + c$

c) $\frac{2}{3}x^{\frac{3}{2}} - x + 2\log\left|\sqrt{x}+1\right| + c$

d) $\frac{2}{3}x^{\frac{3}{2}} - x + 2x^{\frac{1}{2}} + \log\left|\sqrt{x}+1\right| + c$

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