



## MATHS

# BOOKS - HIMALAYA MATHS (KANNADA ENGLISH)

## INDEFINITE INTEGRAL

### Question Bank

1.  $\int \frac{1 - x^2}{1 + x^2} dx =$

A.  $x + 2\tan^{-1}x$

B.  $-x + \tan^{-1}x$

C.  $-x + 2\sinh^{-1}x$

D.  $-x + 2\tan^{-1}x$

**Answer: D**



**View Text Solution**

2.  $\int (x - a)(x^{n-1} + x^{n-2} \cdot a + \dots + a^{n-1}) dx =$  where n is a +ve integer

A.  $x^n - a^n$

B.  $\frac{x^{n+1}}{n+1} - a^n$

C.  $\frac{x^{n+1}}{n+1} - a^n x$

D. none of these

**Answer: C**

 [View Text Solution](#)

$$3. \int \frac{\sqrt{1-x^2} + \sqrt{1+x^2}}{\sqrt{1-x^4}} dx =$$

A.  $\log\left(x + \sqrt{1+x^2}\right) + \sin^{-1}x$

B.  $\sinh^{-1}x - \sin^{-1}x$

C.  $\cos^{-1}x - \sin^{-1}x$

D.  $\tan^{-1}x + \sin^{-1}x$

**Answer: A**



**View Text Solution**

$$4. \int \frac{x dx}{\sqrt{1-x^2}} =$$

A.  $\sin^{-1}x$

B.  $\sin^{-1}x^2$

C.  $\sqrt{1-x^2}$

D.  $-\sqrt{1-x^2}$

**Answer: D**



**View Text Solution**

$$5. \int \frac{dx}{\sqrt{3-4x}} =$$

A.  $\frac{1}{2\sqrt{3-4x}}$

B.  $2\sqrt{3-4x}$

C.  $\frac{1}{\sqrt{3-4x}}$

D.  $-\frac{1}{2}\sqrt{3-4x}$

**Answer: D**



**View Text Solution**

$$6. \int \frac{dx}{\sqrt{1-x}} =$$

A.  $\sin^{-1}\sqrt{x}$

B.  $-\sin^{-1}\sqrt{x}$

C.  $-2\sqrt{1-x^2}$

D.  $2\sqrt{1-x}$

**Answer: C**



**View Text Solution**

7.  $\int \frac{\sqrt{x}}{1+x} dx$  equals :

A.  $2\left(\sqrt{x} - \tan^{-1}\sqrt{x}\right)$

B.  $2\left(\sqrt{x} + \tan^{-1}\sqrt{x}\right)$

C.  $2\tan^{-1}\sqrt{x}$

D.  $2\left(\tan^{-1}x - \sqrt{x}\right)$

**Answer: A**



**Watch Video Solution**

8.  $\int \frac{dx}{1 + \sqrt{x}} =$



**View Text Solution**

9.  $\int \frac{dx}{(\sqrt{x})(1-x)} =$

A.  $\log\left(\frac{\sqrt{x} - 1}{\sqrt{x} + 1}\right)$

B.  $\log\left(\frac{1 + \sqrt{x}}{1 - \sqrt{x}}\right)$

C.  $\log(1 - \sqrt{x})$

D.  $\log(1-x)$

**Answer: B**



**View Text Solution**

10.  $\int \frac{1}{(x+1)\sqrt{x+2}} dx =$

A.  $\tan^{-1}\sqrt{x+2}$



$$\text{B. } \log\left(\frac{\sqrt{x+2}-1}{\sqrt{x+2}+1}\right)$$

$$\text{C. } \log\left(\frac{\sqrt{x+2}+1}{\sqrt{x+2}-1}\right)$$

$$\text{D. } \frac{1}{2}\log\left(\frac{\sqrt{x+2}-1}{\sqrt{x+2}+1}\right)$$

**Answer: B**



**Watch Video Solution**

$$11. \int \frac{4x+3}{3x+7} dx =$$

A.  $(4x)/3 + 19/9 \log(3x+7)$

B.  $(4x)/3 - 19/9 \log(3x+7)$

C.  $(4x)/3 - \log(3x+7)$

D.  $\log ((4x+3)/(3x+7))$

**Answer: B**



**Watch Video Solution**

12.  $\int \frac{1}{x^2(x^4 + 1)^{3/4}} dx$  is equal to \_\_\_\_\_.

A.  $\frac{1}{x} (1 + x^4)^{\frac{1}{4}}$

B.  $-\frac{1}{x} (1 + x^4)^{\frac{1}{4}}$

C.  $(1 + x^4)^{\frac{1}{4}}$

D.  $-(1 + x^4)^{\frac{1}{4}}$

**Answer: B**



**Watch Video Solution**

13.  $\int \frac{2 - x^2}{1 + x^2} dx =$

A.  $x + 3\tan^{-1}x$

B.  $x - 3\tan^{-1}x$

C.  $-x + 3\tan^{-1}x + C$

D.  $-x - 3\tan^{-1}x$

**Answer: C**



**Watch Video Solution**

$$14. \int \frac{e\left(\frac{1}{x}\right)}{x^2} dx =$$

A.  $e^{\frac{1}{x}} + c$

B.  $-e^{\frac{1}{x}} + c$

C.  $\frac{1}{4}e^{\frac{1}{x}} + c$

D. none of these

**Answer: B**

 [Watch Video Solution](#)

$$15. \int \frac{e^x}{e^x + 1} dx =$$

A.  $x - \log(e^x + 1) + c$

B.  $\log(e^x + 1) + c$

C.  $\frac{e^x + 1}{2} + c$

D.  $e^x + c$

**Answer: B**



**Watch Video Solution**

16.  $\int \sqrt{e^x - 1} dx =$

A.  $2 \left[ \sqrt{e^x - 1} - \tan^{-1} \sqrt{e^x - 1} \right]$

B.  $\sqrt{e^x - 1} - \tan^{-1} \sqrt{e^x - 1}$

$$C. \sqrt{e^x - 1} + \tan^{-1}\sqrt{e^x - 1}$$

$$D. 2 \left[ \sqrt{e^x - 1} + \tan^{-1}\sqrt{e^x - 1} \right]$$

**Answer: A**



**Watch Video Solution**

$$17. \int \frac{dx}{\sqrt{e^x - 1}} =$$

$$A. 2 \tan^{-1} \left( \sqrt{e^x - 1} \right)$$

$$B. \tan^{-1} \left( e^x - 1 \right)$$

$$C. \tan^{-1} \left( e^x + 1 \right)$$

D. none of these

**Answer: A**



**Watch Video Solution**

18.  $\int \frac{e^x - 1}{e^x + 1} dx =$

A.  $2\log(e^x + 1) - x$

B.  $x + 2\log(e^x + 1)$

C.  $\log(e^x + 1) + 2x$

D.  $x - 2\log(e^x + 1)$

**Answer: A**



**Watch Video Solution**

$$19. \int \frac{dx}{e^x + e^{-x}} dx =$$

A.  $\log(1 + e^x)$

B.  $\sqrt{1 + e^x}$

C.  $x + \log(1 + e^x)$

D.  $\tan^{-1}(e^x)$

**Answer: D**



**Watch Video Solution**

$$20. \int e^{\frac{2}{3} \log \sqrt{x}} dx =$$



A.  $\frac{3}{4}x^{\frac{4}{3}}$

B.  $\frac{3}{2}e^{\frac{2}{3}\log\sqrt{x}}$

C.  $\frac{3}{5}x^{\frac{5}{3}}$

D.  $\frac{4}{3}x^{\frac{4}{3}}$

**Answer: A**



**Watch Video Solution**

21.  $\int \frac{dx}{e^x + e^{-x}} dx =$

A.  $\log(\tanh x)$

B.  $2\log(e^x - e^{-x})$

C.  $2\log\left[\log\left(e^x - e^{-x}\right)\right]$

D.  $\log[\log(\cosh x)]$

**Answer: D**



**Watch Video Solution**

22.  $\int e^{(e^x+x)} dx =$

A.  $e^{(e^x)} \cdot x + c$

B.  $\left(e^{e^x} (e^x - 1)\right) + c$

C.  $e^{(e^x)} + c$

D.  $e^x + x$

**Answer: C**



**Watch Video Solution**

$$23. \int \frac{1}{1 + e^{-x}} dx =$$

A.  $\log(1 - e^{-x})$

B.  $\log(1 + e^x)$

C.  $\log e^x$

D.  $\log e^{-x}$

**Answer: B**



**Watch Video Solution**

24.  $\int \frac{e^x}{e^x + 1} dx =$

A.  $\frac{1}{4} \tan^{-1} x$

B.  $\frac{1}{4} \coth x$

C. minus  $\frac{1}{4} \coth x$

D. minus  $\frac{1}{4} \tanh x$

**Answer: C**

 **Watch Video Solution**

25. The value of  $\int \frac{e^x \left( (1 + x^2) \tan^{-1} x + 1 \right)}{x^2 + 1} dx$  is equal to

A.  $(\tan^{-1}e^x)^2$

B.  $\log(\cot^{-1}e^x)$

C.  $\log(\tan^{-1}e^x)$

D. none of these

**Answer: C**

 **Watch Video Solution**

26.  $\int \frac{e^{\tan^{-1}\sqrt{x}}}{\sqrt{x} + x\sqrt{x}} dx$

A.  $2e^{\tan^{-1}\sqrt{x}}$

B.  $\frac{1}{2}e^{\tan^{-1}\sqrt{x}}$

C.  $2\tan^{-1}\sqrt{x}$

D.  $e^{\tan^{-1}\left(\frac{1}{\sqrt{x}}\right)}$

**Answer: C**



**Watch Video Solution**

27.  $\int (1 + 5x + 10x^2 + 10x^3 + 5x^4 + x^5) dx =$

A.  $5 + 20x + 30x^2 + 20x^3 + 5x^4$

B.  $x + \frac{5x^2}{2} + \frac{10x^3}{3} + \frac{10x^4}{4} + \frac{5x^5}{5} + 5x^6$

C.  $\frac{(1+x)^6}{3!}$

D. none of these

**Answer: C**



**Watch Video Solution**

$$28. \int \frac{\sin 4x}{\cos 4x} dx =$$

- A.  $-\log(\cos 4x) + c$
- B.  $-\frac{1}{4} \log(\cos 4x) + c$
- C.  $\log(\sin 4x) + c$
- D.  $\frac{1}{4} \log(\sin 4x) + c$

**Answer: B**



**Watch Video Solution**

29.  $\int \frac{\sin^6 x}{\cos^8 x} dx =$

A.  $-\frac{\tan^7 x}{7}$

B.  $\frac{\tan^7 x}{7}$

C.  $\frac{7}{\cos^7 x}$

D.  $\frac{1}{7\cos^7 x}$

**Answer: B**



**Watch Video Solution**

30.  $\int \frac{e^{\tan^{-1} x}}{1+x^2} dx.$



A.  $e^{\tan^{-1}x} + c$

B.  $e^x + x^2 + c$

C.  $\tan^{-1}x + c$

D.  $\log(1 + x^2) + c$

**Answer: A**



**Watch Video Solution**

31.  $\int \frac{e^{\sqrt{x}}}{\sqrt{x}} dx =$

A.  $e^{\sqrt{x}}$

B.  $\frac{e^{\sqrt{x}}}{2}$

C.  $2e^{\sqrt{x}}$

D.  $\sqrt{x} \cdot e^{\sqrt{x}}$

**Answer: C**



**Watch Video Solution**

32.  $\int \frac{dx}{\cos x + \sqrt{3}\sin x}$  equals :

A.  $\sqrt{2} \left( \sqrt{\cot x} + \frac{1}{5} \tan \frac{5}{2} x \right)$

B.  $\sqrt{2} \left( \sqrt{\tan x} + \frac{1}{5} \tan \frac{5}{2} x \right)$

C.  $\sqrt{2} \left( \sqrt{\tan x} - \frac{1}{5} \tan \frac{5}{2} x \right)$

$$D. \sqrt{2} \left( \sqrt{\cot x} - \frac{1}{5} \tan \frac{5}{2} x \right)$$

**Answer: B**



**Watch Video Solution**

$$33. \int \frac{dx}{\cos x \sqrt{\cos 2x}} =$$

A.  $\sqrt{2} \sin^{-1}(\tan x)$

B.  $\sin^{-1}(\tan x)$

C.  $\frac{1}{\sqrt{2}} \sin^{-1}(\tan x)$

D.  $\cos^{-1}(\tan x)$

**Answer: B**



**Watch Video Solution**

34.  $\int \sec^2 x \cdot \operatorname{cosec}^2 x dx$

A.  $\cot x + \tan x$

B.  $\text{minus } \cot x - \tan x$

C.  $\text{minus } \cot x + \tan x$

D.  $\cot x - \tan x$

**Answer: C**



**Watch Video Solution**

35.  $\int \frac{1}{\cos 2x + \sin^2 x} dx =$

A.  $\cot x$

B.  $-\tan x$

C.  $\tan x$

D.  $-\cot x$

**Answer: C**



**Watch Video Solution**

36.  $\int \frac{x + \sin x}{1 + \cos x} dx$  is equal to

A.  $x (\tan) x/2$

B.  $2x (\tan) x/2$

C.  $x(\cot)\frac{x}{2}$

D.  $x. \left(\sec^2\right)\frac{x}{2}$

**Answer: A**



**Watch Video Solution**

37.  $\int \left( \frac{2 + \cos\left(\frac{x}{2}\right)}{x + \sin\left(\frac{x}{2}\right)} \right) dx =$

A.  $\log (x+ (\sin) x/2)$

B.  $2 \log (x + (\sin) x/2)$

C.  $2 \log (2 + (\cos) x/2)$

D.  $((\cos)x/2)/(x + (\cos) x/2)$

**Answer: B**



**Watch Video Solution**

38.  $\int \frac{\sin x \cdot \cos x}{\sin^4 x + \cos^4 x} dx =$

A.  $\tan^{-1}(\sin x) + c$

B.  $\frac{1}{2} \tan^{-1}(\sin 2x) + c$

C.  $\frac{1}{2} \tan^{-1}(\tan^2 x) + c$

$$D. \frac{1}{2} \tan^{-1}(\cot^2 x) + c$$

**Answer: C**



**Watch Video Solution**

$$39. \int \frac{1 + \cos 2x}{1 - \cos 2x} dx =$$

A. minus cot x + x

B. cot x - x

C. log (1-cos 2x)

D. minus cot x -x

**Answer: D**



 [View Text Solution](#)

40.  $\int \frac{\cos 2x}{\sin^2 x \cos^2 x} dx =$

A.  $\text{minus } \tan x - \cot x$

B.  $\tan x + \cot x$

C.  $\tan x - \cot x$

D.  $\cot x - \tan x$

**Answer: A**

 [View Text Solution](#)

41.  $\int \frac{1}{\cos 2x + \sin^2 x} dx =$

A.  $\cot x$

B.  $\text{minus tan } x$

C.  $\tan x$

D.  $\text{minus cot } x$

**Answer: C**



**Watch Video Solution**

42.  $\int \frac{\cos x}{\sqrt{1 + \sin x}} dx.$

A.  $x$

B. minus  $x$

C.  $\pm x$

D. none

**Answer: A**



**Watch Video Solution**

43.  $\int \frac{dx}{1 + \sin 2x} =$

A.  $1/(1+\tan x)$

B.  $-1/(1+ \tan x)$

C.  $1/(1 + \cot x)$

D.  $-1/(1 + \cot x)$

**Answer: B**



**Watch Video Solution**

44.  $\int \frac{\sin\theta + \cos\theta}{\sqrt{\sin 2\theta}} d\theta =$

A.  $\log [\cos\theta - \sin\theta + \sqrt{\sin 2\theta}]$

B.  $\sin^{-1}(\cos\theta - \sin\theta)$

C.  $\sin^{-1}(\sin\theta - \cos\theta)$

D.  $\sin^{-1}(\sin\theta + \cos\theta)$

**Answer: C**



**Watch Video Solution**

45.  $\int \sin x \cdot e^{\cos x} dx =$

A.  $e^{\cos x}$

B.  $-e^{\cos x}$

C.  $e^{\sin x}$

D. none of these

**Answer: A**



**Watch Video Solution**

$$46. \int \frac{\sin 5x}{\sqrt{\cos 5x}} dx =$$

A.  $\frac{2}{5} \sqrt{\cos 5x}$

B.  $-\frac{2}{5} \sqrt{\cos 5x}$

C.  $10 \sqrt{\cos 5x}$

D.  $-10 \sqrt{\cos 5x}$

**Answer: B**



**Watch Video Solution**

$$47. \int \frac{\sin x dx}{1 + 4 \cos x} =$$

A.  $\log (1+ 4 \cos x) + c$

B.  $\text{minus } 4 \log (1+ 4 \cos x) + c$

C.  $\text{minus } \log (\sin x) + c$

D.  $\text{minus } 1/4 \log (1+ 4 \cos x)+c$

**Answer: D**



**Watch Video Solution**

48.  $\int \frac{\sin x \cos x}{1 + \cos 2x} dx =$

A.  $\log(1 + \cos 2x) + C$

B.  $\frac{1}{2} \log(\cos x) + C$

$$\text{C. } -\frac{1}{2}\log(\cos x) + C$$

$$\text{D. } \frac{1}{4}\log \cos x + C$$

**Answer: C**



**Watch Video Solution**

$$49. \int \frac{dx}{x(\log x)^3} =$$

$$\text{A. } \frac{1}{(\log x)^2}$$

$$\text{B. } \frac{-1}{2(\log x)^2}$$

$$\text{C. } -(\log x)^{-2}$$

**D. none of these**



**Answer: B**



**Watch Video Solution**

50.  $\int e^{\sin^2 x} \cdot \sin 2x dx =$

A.  $e^{\sin^2 x} + c$

B.  $e^{\sin 2x} + c$

C.  $\sin 2x + c$

D.  $\sin^2 x + c$

**Answer: A**



**Watch Video Solution**

51. Find  $\int \frac{\sin x}{\sin(x - a)} dx$

A.  $x \cos a - \sin a \cdot \log [\sin (x-a)]$

B.  $x \sin a$

C.  $x \sin a + \sin a \cdot \log [\sin (x-a)]$

D.  $x \cos a + \sin a \log [\sin (x-a)]$

**Answer: D**



**Watch Video Solution**

52.  $\int \sec^5 x \tan x dx$

A.  $1) \frac{1}{5} \tan^5 x + c$

B.  $2) 5 \log (\cos x)+c$

C.  $3) \frac{1}{5} \sec^5 x+c$

D.  $4) \sec^5 x+c$

**Answer: C**



**Watch Video Solution**

53.  $\int \frac{\sec^2 x dx}{\log(\tan x)^{\tan x}} =$

A.  $\log \left[ \log(\tan x)^{\tan x} \right]$

B.  $\log (\log \tan x)$

C.  $\log ((\log \tan x)/(\tan x))$

$$D. \log \left[ \frac{\tan x}{\log (\tan x)} \right]$$

**Answer: B**



**Watch Video Solution**

$$54. \int \frac{e^{\sqrt{x}} \cdot \operatorname{cose}^{\sqrt{x}}}{\sqrt{x}} dx =$$

A.  $2 \operatorname{cose}^{\sqrt{x}}$

B.  $\frac{1}{2} \operatorname{sine}^{\sqrt{x}}$

C.  $\frac{1}{2} \operatorname{cose}^{\sqrt{x}}$

D.  $2 \operatorname{sine}^{\sqrt{x}}$

**Answer: D**



Watch Video Solution

$$55. \int \frac{e^x(1+x)}{\sin^2(xe^x)} dx =$$

A.  $\cot(xe^x)$

B.  $-\cot(xe^x)$

C.  $\tan(xe^x)$

D.  $-\tan(xe^x)$

**Answer: B**



Watch Video Solution

56. Evaluate  $\int \frac{e^x(1+x)}{\cos^2(xe^x)} dx$

A.  $\cot(xe^x)$

B.  $-\cot(xe^x)$

C.  $\tan(xe^x)$

D.  $-\tan(xe^x)$

**Answer: C**



**Watch Video Solution**

57.  $\int \frac{\cot x}{\log(\sin x)} dx =$

A.  $\log [\log (\sin x)]$

B.  $\log [\cot x]$

C.  $\frac{1}{2} \cot^2 x$

D.  $\log [\log (\cos x)]$

**Answer: A**



**Watch Video Solution**

58.  $\int \frac{dx}{\sqrt{\sin^3 x \cdot \cos x}} =$

A.  $\frac{-2}{\sqrt{\tan x}}$

B.  $\frac{2}{\sqrt{\tan x}}$

C.  $-2\sqrt{\tan x}$

$$D. 2\sqrt{\tan x}$$

**Answer: A**



**Watch Video Solution**

$$59. \int \frac{\sqrt{\tan x}}{\sin x \cos x} dx =$$

A.  $2\sqrt{\cot x}$

B.  $\sqrt{\cot x}$

C.  $\sqrt{\tan x}$

D.  $2\sqrt{\tan x}$

**Answer: D**





Watch Video Solution

$$60. \int [1 + 2\tan x(\tan x + \sec x)]^{\frac{1}{2}} dx =$$

- A.  $\log [\sec x \cdot (\sec x - \tan x)]$
- B.  $\log [\operatorname{cosec} x \cdot (\sec x + \tan x)]$
- C.  $\log [\sec x \cdot (\sec x + \tan x)]$
- D.  $\log [(\sec x + \tan x)]$

**Answer: C**



Watch Video Solution

61.  $\int e^{x \log a} \cdot e^x dx =$

A.  $(ae)^x$

B.  $\frac{(ae)^x}{\log(ae)}$

C.  $\frac{e^x}{1 + \log x}$

D.  $(1 + \log x)e^x$

**Answer: B**



**Watch Video Solution**

62.  $\int \sqrt{\frac{2\sin(x^2 - 1) - \sin 2(x^2 - 1)}{2\sin(x^2 - 1) + \sin 2(x^2 - 1)}} dx, (x^2 - 1 \neq n\pi)$

A.  $\log \left[ \frac{1}{2} \sec^2(x^2 - 1) \right]$

B.  $\log \left[ \frac{1}{2} \sec \left( \frac{x^2 - 1}{2} \right) \right]$

C.  $\frac{1}{2} \log \sec^2(x^2 - 1)$

D.  $\log \sec \left( \frac{x^2 - 1}{2} \right)$

**Answer: B**

 **Watch Video Solution**

63.  $\int \frac{\cos x + x \sin x}{x(x + \cos x)} dx =$

A.  $\log [x(x + \cos x)] + c$

B.  $\log (x/(x+\cos x))+c$

C.  $\log ((x+\cos x)/x)+c$

D.  $\log [x(x-\cos x)]+c$

**Answer: B**



**Watch Video Solution**

64.  $\int \frac{dx}{a \sec x + b \tan x} =$

A.  $\log (a \sec x + b \tan x)$

B.  $1/b \log (a + b \sin x)$

C.  $1/a \log (a + b \sin x)$

D.  $b \log (a + b \sin x)$

**Answer: B**



**Watch Video Solution**

$$65. \int \frac{1 - (\tan)^{\frac{x}{2}}}{1 + (\tan)^{\frac{x}{2}}} dx =$$

A.  $2 \log \left( \sec \left( \frac{x}{2} \right) \right)$

B.  $2 \log \left[ \cos \left( \frac{\pi}{4} - \frac{x}{2} \right) \right]$

C.  $2 \log \left[ \sec \left( \frac{\pi}{4} - \frac{x}{2} \right) \right]$

D. none of these

**Answer: B**



**Watch Video Solution**

66.  $\int \frac{\sinh x}{1 + \sinh^2 x} dx =$

A.  $\operatorname{sech} x$

B.  $-\operatorname{sech} x$

C.  $\tanh x$

D.  $\operatorname{coth} x$

**Answer: B**



**Watch Video Solution**

$$67. \int \frac{10x^9 + 10^x \log(10)}{10^x + x^{10}} dx$$

A.  $\log(10^x + x^{10})$

B.  $\sqrt{10^x + x^{10}}$

C.  $\frac{1}{2} (10^x + x^{10})^2$

D. none of these

**Answer: A**



**Watch Video Solution**

$$68. \int \frac{\operatorname{cosec} x}{\log(\tan) \frac{x}{2}} dx =$$

A.  $\log (\log \tan x)$

B.  $\log \left( \left( \sec^2 \right) \frac{x}{2} \right)$

C.  $\log ((\sec)x/2)$

D.  $\log [\log ((\tan) x/2)]$

**Answer: D**



**Watch Video Solution**

69.  $\int \frac{\sec x dx}{\log(\sec x + \tan x)} =$

A.  $\sec x + \tan x$

B.  $\log (\sec x)$



C.  $\log [\log (\sec x + \tan x)]$

D.  $\log (\sec x + \tan x)$

**Answer: C**



**Watch Video Solution**

70.  $\int \frac{\tan x}{\log(\sec x)} dx =$

A.  $\log [\tan x]$

B.  $\log [\log (\sec x)]$

C.  $\frac{1}{2} \tan^2 x$

D.  $\log [\log (\cos x)]$

**Answer: B**



**Watch Video Solution**

71.  $\int e^{3\log x} (x^4 + 1)^{-1} dx$  is equal to :

A.  $\frac{1}{4} \log(x^4 + 1)$

B.  $-\log(x^4 + 1)$

C.  $\log(x^4 + 1)$

D.  $\frac{1}{x^4 + 1}$

**Answer: A**



**Watch Video Solution**

$$72. \int \cos \left[ 2 \cot^{-1} \sqrt{\frac{1-x}{1+x}} \right] dx =$$

A.  $\frac{1}{2}x^2$

B.  $\frac{1}{2} \sin \left[ 2 \cot^{-1} \sqrt{\frac{1-x}{1+x}} \right]$

C.  $-\frac{1}{2}x^2$

D. minus  $1/2 x + c$

**Answer: C**



**Watch Video Solution**

$$73. \int \sin^{-1} (3x - 4x^3) dx =$$

A.  $3\left(x\sin^{-1}x - \sqrt{1-x^2}\right)$

B.  $3\left(x\sin^{-1}x + \sqrt{1-x^2}\right)$

C.  $x\sin^{-1}x + \sqrt{1-x^2}$

D.  $x\sin^{-1}x - \sqrt{1-x^2}$

**Answer: B**



**Watch Video Solution**

74.  $\int \cos^{-1}\left(\frac{1-x^2}{1+x^2}\right) dx$

A.  $2\left[x\tan^{-1}x - \log(1+x^2)\right]$

B.  $2x\tan^{-1}x - \log(1+x^2)$

C.  $2x \tan^{-1}x + \log(1 + x^2)$

D.  $x \tan^{-1}x + 2 \log(1 + x^2)$

**Answer: B**



**Watch Video Solution**

75.  $\int \cos^{-1}(2x^2 - 1) dx =$

A.  $2 \left( x \cos^{-1}x - \sqrt{1 - x^2} \right)$

B.  $2 \left( x \cos^{-1}x + \sqrt{1 + x^2} \right)$

C.  $2 \left( x \cos^{-1}x - \sin^{-1}x \right)$

D.  $2 \left( x \cos^{-1}x + \sin^{-1}x \right)$

**Answer: A**



**Watch Video Solution**

76.  $\int \frac{\sin^{-1}x - \cos^{-1}x}{\sin^{-1}x + \cos^{-1}x} dx =$

A.  $\frac{4}{\pi} \left( x \sin^{-1}x + \sqrt{1-x^2} \right) - x$

B.  $\log \left( \sin^{-1}x + \cos^{-1}x \right)$

C.  $\frac{4}{\pi} \left( x \sin^{-1}x + \sqrt{1-x^2} \right)$

D.  $\frac{4}{\pi} \left( x \sin^{-1}x - \sqrt{1-x^2} \right) - x$

**Answer: A**



**Watch Video Solution**

$$77. \int \tan^6 x \cdot \sec^2 x dx =$$

A.  $\frac{\tan^7 x}{7} + c$

B.  $\tan^7 x + c$

C.  $7\tan^7 x + c$

D.  $\sec x + c$

**Answer: A**



**Watch Video Solution**

$$78. \int \cot^2 x dx =$$

A.  $\cot x - x$

B.  $\cot x + x$

C.  $(-\cot x - x)$

D. none of these

**Answer: C**



**Watch Video Solution**

79.  $\int \cot^4 x dx =$

A.  $\frac{1}{3} \cot^3 x + \cot x + x + c$

B.  $\frac{1}{3} \cot x + c$



$$C. -\frac{1}{3}\cot^3x + \cot^2 + c$$

$$D. -\frac{1}{3}\cot^3x + \cot x + x + c$$

**Answer: D**



**Watch Video Solution**

**80.**  $\int \tan^5 x dx =$

A.  $\frac{1}{4}\tan^4x - \frac{1}{2}\tan^2x + \log \sec x + c$

B.  $\frac{1}{2}\tan^x - \frac{1}{2}\tan^2x + \sec x + c$

C.  $\frac{1}{3}\tan^2x - \frac{1}{2}\tan x + \cot x + c$

D.  $\frac{1}{2}\tan^4x - \frac{1}{2}\tan x + \log \sec x + c$

**Answer: A**



**Watch Video Solution**

$$81. \int \cos^{-\frac{3}{7}}x \cdot \sin^{\frac{11}{7}}x dx =$$

A.  $\log\left(\sin^{\frac{4}{7}}x\right)$

B.  $\frac{4}{7}\tan^{\frac{4}{7}}x$

C.  $-\frac{7}{4}\tan^{-\frac{4}{7}}x$

D.  $\frac{7}{4}\tan^{-\frac{4}{7}}x$

**Answer: C**



**Watch Video Solution**

$$82. \int (a^{-x} - b^{-x}) dx =$$

A.  $\frac{a^{-x}}{\log a} - \frac{b^{-x}}{\log b}$

B.  $(a^{-x} - b^{-x})(\log a - \log b)$

C.  $\frac{b^{-x}}{\log b} - \frac{a^{-x}}{\log a}$

D.  $b^{-x} - a^{-x}$

**Answer: C**



**Watch Video Solution**

$$83. \int e^x \cdot 2^{3\log_2 x} dx =$$

A.  $e^x(x^3 - 3x^2 + 6x - 6)$

B.  $e^x(x^3 + 3x^2 + 6x + 6)$

C.  $e^x(-x^3 + 3x^2 - 6x + 6)$

D. none of these

**Answer: A**



**Watch Video Solution**

84.  $\int \frac{e^x}{\sqrt{x}}(1 + 2x)dx =$

A.  $\sqrt{x}e^x$

B.  $\frac{e^x}{\sqrt{x}}$

C.  $\frac{e^x}{2\sqrt{x}}$

D.  $2\sqrt{x}e^x$

**Answer: D**



**Watch Video Solution**

85.  $\int e^x \left( \frac{x-4}{x^5} \right) dx =$

A.  $\frac{e^x}{x^5}$

B.  $-\frac{e^x}{x^4}$

C.  $\frac{e^x}{x^4}$

D.  $\frac{-e^x}{x^5}$

Answer: C



Watch Video Solution

$$86. \int e^{2x} \left( \frac{1 + \sin 2x}{1 + \cos 2x} \right) dx =$$

A.  $e^{2x} \cdot \tan 2x$

B.  $e^{2x} \tan 2x$

C.  $\frac{1}{2} e^{2x} \tan x$

D.  $-e^{2x} \tan 2x$

Answer: C



Watch Video Solution

87.  $\int e^{\tan^{-1}x} \left( \frac{1+x+x^2}{1+x^2} \right) dx$  equals :

A.  $xe^{\tan^{-1}x}$

B.  $x^2e^{\tan^{-1}x}$

C.  $\frac{1}{x}e^{\tan^{-1}x}$

D.  $\frac{1}{x^2}\tan^{-1}x$

**Answer: A**



**Watch Video Solution**

88. Evaluate :  $\int \frac{\sqrt{1-\sin x}}{1+\cos x} e^{-x/2} dx.$

A.  $(\sec)\frac{x}{2} \cdot e^{-\frac{\pi}{2}}$

B.  $-(\sec)\frac{x}{2} \cdot e^{-\frac{\pi}{2}}$

C.  $(\tan)\frac{x}{2} \cdot e^{-\frac{\pi}{2}}$

D.  $-(\tan)\frac{x}{2} \cdot e^{-\frac{\pi}{2}}$

**Answer: B**



**Watch Video Solution**

89.  $\int e^x \left( \frac{x+2}{x+4} \right)^2 dx =$

A.  $\frac{xe^x}{x+4}$

B.  $e^2 \left( \frac{x+2}{x+4} \right)$



C.  $\frac{e^x}{x + 4}$

D.  $\frac{e^x(x - 2)}{x + 4}$

**Answer: A**



**Watch Video Solution**

90.  $\int e^x \left( \frac{1 + \sin x \cdot \cos x}{1 + \cos 2x} \right) dx =$

A.  $e^x \tan x$

B.  $\frac{1}{2} e^x \tan x$

C.  $\frac{1}{2} e^x \cot x$

D.  $2e^x \tan x$

**Answer: B**



**Watch Video Solution**

91.  $\int \frac{\log x - 1}{(\log x)^2} dx =$

A.  $x/(\log x)$

B.  $(\log x)/x$

C.  $1/(\log x)$

D.  $(-x/(\log x))$

**Answer: A**



**Watch Video Solution**

92.  $\int e^x (\cot x - \cot^2 x) dx =$

A.  $e^x \cdot \cot x$

B.  $e^x (\cot x - 1)$

C.  $e^x \operatorname{cosec}^2 x$

D.  $e^x (\cot x + 1)$

**Answer: D**



**Watch Video Solution**

93.  $\int e^x (\tan x + \tan^2 x) dx =$

A.  $e^x (\tan x - 1)$

B.  $e^x \tan x$

C.  $e^x \tan^2 x$

D.  $e^x (\tan x + 1)$

**Answer: A**



**Watch Video Solution**

94.  $\int x^n \log x dx$

A.  $\frac{x^{n+1}}{n} [n \log x - 1]$

B.  $\frac{x^{n+1}}{n+1} [(n+1) \log x - 1]$

C.  $\frac{x^{n+1}}{(n+1)^2} [(n+1) \log x - 1]$

$$D. \frac{x^{n+1}}{n^2} [n \log x - 1]$$

**Answer: C**



**Watch Video Solution**

$$95. \int 2x^3 \cdot e^{x^2} dx$$

$$A. e^{x^2} (x^2 - 1) + C$$

$$B. e^{x^2} (x^2 + 1)$$

$$C. x^2 \cdot e^{x^2}$$

$$D. e^{x^2} (1 - x^2)$$

**Answer: A**

 Watch Video Solution

96.  $\int x \cdot 2^x dx =$

A.  $\frac{2^x}{\log 2} (x + \log 2)$

B.  $\frac{2^x}{(\log 2)^2} \left( (\log) \frac{e^x}{2} \right)$

C.  $\frac{2^x}{(\log 2)^2} (x \log 2 - 1)$

D. none of these

**Answer: C**

 Watch Video Solution

97.  $\int \log\left(x + \sqrt{x^2 + a^2}\right) dx =$

A.  $x \log\left(x + \sqrt{x^2 + a^2}\right) + \sqrt{x^2 + a^2}$

B.  $x \log\left(x + \sqrt{x^2 + a^2}\right) + 2\sqrt{x^2 + a^2}$

C.  $x \log\left(x + \sqrt{x^2 + a^2}\right) - \sqrt{x^2 + a^2}$

D.  $x \log\left(x + \sqrt{x^2 + a^2}\right) - 2\sqrt{x^2 + a^2}$

**Answer: C**



**Watch Video Solution**

98.  $\int \frac{f(x) \cdot g'(x) - f'(x)g(x)}{f(x) \cdot g(x)} \cdot [\log g(x) - \log f(x)] dx =$

A.  $\frac{1}{2} \left[ \log \left( \frac{g(x)}{f(x)} \right) \right]^2$

B.  $\log \left( \frac{g(x)}{f(x)} \right)$

C.  $\frac{g(x)}{f(x)} \frac{\log(g(x))}{f(x)}$

D.  $\log \left( \frac{f(x)}{g(x)} \right)$

**Answer: A**



**Watch Video Solution**

99.  $\int \frac{dx}{\log(x^x)[\log x + 1]} =$

A.  $\log(\log x + 1)$



B.  $\log\left(\frac{\log x + 1}{\log x}\right)$

C.  $\log\left(\frac{\log x}{\log x + 1}\right)$

D.  $\log(\log x - 1)$

**Answer: C**



**Watch Video Solution**

100.  $\int \frac{dx}{x \cdot \log x \cdot \log(\log x)} =$

A.  $\log [\log (\log x)] + C$

B.  $\log [x \log x]$

C.  $\log (\log x)$

D.  $\log[x \log (\log x)]$

**Answer: A**



**Watch Video Solution**

101.  $\int [\sin(\log x) + \cos(\log x)] dx =$

A.  $x \cos (\log x)$

B.  $(-x \cos (\log x))$

C.  $x \sin (\log x)$

D.  $(-x \sin (\log x))$

**Answer: C**

 Watch Video Solution

102.  $\int \frac{dx}{x^2 - 2x + 2} =$

A.  $\log \left( \frac{(x-1)}{(x-2)} \right)$

B.  $\log \left( \frac{(x-3)}{(x+1)} \right)$

C.  $\tan^{-1}(x-1)$

D.  $\tan^{-1}(1+x)$

**Answer: C**

 Watch Video Solution

103.  $\int \frac{1}{x^2 - 3x + 2} dx =$

A.  $\log \left( \frac{(x-1)}{(x-2)} \right)$

B.  $\log \left( \frac{(x-3)}{(x+1)} \right)$

C.  $\log \left( \frac{(x-2)}{(x-1)} \right)$

D.  $\log \left( \frac{(x+1)}{(x-3)} \right)$

**Answer: C**



**Watch Video Solution**

104.  $\int \frac{\cos x dx}{(\sin x - 1)(\sin x - 2)} =$

A.  $\log ((\sin x-1) (\sin x-2))+C$

B.  $\log ((\sin x-2)/(\sin x-1))+C$

C.  $\log ((\sin x-1)/(\sin x-2))+C$

D.  $1/2 \log ((\sin x-1)/(\sin x-2))+C$

**Answer: C**



**Watch Video Solution**

105.  $\int \frac{(2x + 3)dx}{x^2 + 3x + 2}$

A.  $\tan^{-1}(x + 1)$

B.  $\tan^{-1}(x + 1) - \log(x^2 + 2x + 2)$

$$C. \tan^{-1}(x + 1) + \log(x^2 + 2x + 2)$$

$$D. \log(x^2 + 3x + 2) + C$$

**Answer: B**



**Watch Video Solution**

$$106. \int \frac{dx}{5 + 4\cos x} =$$

$$A. \frac{3}{2} \tan^{-1} \left( \frac{1}{3} (\tan) \frac{x}{2} \right)$$

$$B. \frac{1}{3} \tan^{-1} \left( \frac{1}{3} (\tan) \frac{x}{2} \right)$$

$$C. \frac{2}{3} \tan^{-1} \left( \frac{1}{3} (\tan) \frac{x}{2} \right)$$

$$D. 3 \log \left( \frac{(3 - (\tan)x/2)}{(3 + (\tan)x/2)} \right)$$

Answer: C



Watch Video Solution

$$107. \int \frac{dx}{4 + 5\cos x} =$$

A.  $\frac{3}{2} \left( \tan^{-1} \right) \frac{1}{3} \left( \left( \tan \right) \frac{x}{2} \right)$

B.  $\frac{2}{3} \log\left(\frac{3+(\tan)x/2}{3-(\tan)x/2}\right)$

C.  $\frac{1}{3} \log\left(\frac{3-(\tan)x/2}{3+(\tan)x/2}\right)$

D.  $\frac{1}{3} \log\left(\frac{3+(\tan)x/2}{3-(\tan)x/2}\right)$

Answer: C



Watch Video Solution

$$108. \int \frac{dx}{5 + 4\sin x} =$$

$$\text{A. } \frac{2}{3} \tan^{-1} \left( \frac{(4\cos)\frac{x}{2} + 5(\sin)\frac{x}{2}}{3(\cos)\frac{x}{2}} \right)$$

$$\text{B. } \frac{2}{3} \tan^{-1} \left( \frac{5 + 4(\tan)\frac{x}{2}}{3} \right)$$

$$\text{C. } \frac{2}{3} \cot^{-1} \left( \frac{4 + 5(\tan)\frac{x}{2}}{3} \right)$$

D. none of these

**Answer: D**





Watch Video Solution

$$109. \int \frac{dx}{\sin(x-a)\sin(x-b)} =$$

A.  $\frac{1}{\sin(a-b)} \log \left[ \frac{\sin(x-a)}{\sin(x-b)} \right]$

B.  $\frac{-1}{\sin(a-b)} \log \left[ \frac{\sin(x-a)}{\sin(x-b)} \right]$

C.  $\log[\sin(x-a) \cdot \sin(x-b)]$

D.  $\log \left[ \left( \frac{\sin(x-a)}{\sin(x-b)} \right) \right]$

**Answer: A**



Watch Video Solution

$$110. \int \frac{2\cos x dx}{\sin x + \cos x}$$

A.  $\frac{1}{2}x + \frac{1}{2} \log (\sin x + \cos x)$

B.  $x - \log (\sin x + \cos x)$

C.  $x + \log (\sin x + \cos x)$

D.  $2 \log (\sin x + \cos x)$

**Answer: C**



**Watch Video Solution**

$$111. \int \frac{2\sin x dx}{\sin x + \cos x} =$$

A.  $\frac{x}{2} + \frac{1}{2} \log (\sin x + \cos x)$

B.  $x - \log(\sin x + \cos x)$

C.  $x + \log(\sin x + \cos x)$

D.  $(-2 \log(\sin x + \cos x))$

**Answer: B**



**Watch Video Solution**

112.  $\int \frac{\sin x \cdot \cos x}{a^2 \cos^2 x + b^2 \sin^2 x} dx$

A.  $\frac{1}{a^2 - b^2} \log(a^2 \cos^2 x + b^2 \sin^2 x)$

B.  $-\frac{1}{2(a^2 - b^2)} \log(a^2 \cos^2 x + b^2 \sin^2 x)$

C.  $\tan^{-1}\left(\frac{b \tan x}{a}\right)$

D.  $\tan^{-1}\left(\frac{b \cot x}{a}\right)$

Answer: B

 Watch Video Solution

113.  $\int \frac{dx}{(x^2 + a^2)(x^2 + b^2)} =$

A.  $\frac{1}{a^2 - b^2} \left( \frac{1}{a} \tan^{-1} \left( \frac{x}{a} \right) - \frac{1}{b} \tan^{-1} \left( \frac{x}{b} \right) \right)$

B.  $\frac{1}{b^2 - a^2} \left( \frac{1}{a} \left( \tan^{-1} \right) \frac{x}{a} - \frac{1}{b} \left( \tan^{-1} \right) \frac{x}{b} \right)$

C.  $\frac{1}{a} \left( \tan^{-1} \right) \frac{x}{a} + \frac{1}{b} \left( \tan^{-1} \right) \frac{x}{b}$

D.  $\frac{1}{a^2 - b^2} \tan^{-1} \left( \frac{x^2 + a^2}{x^2 + b^2} \right)$

Answer: B



Watch Video Solution

114. Evaluate :  $\int \frac{x^2}{(x^2 + 4)(x^2 + 9)} dx.$

A.  $\frac{-1}{5} \left( \frac{1}{2}(\tan)\frac{x}{2} - \frac{1}{3} \left( \tan^{-1} \right) \frac{x}{3} \right)$

B.  $\frac{1}{5} \left( \frac{1}{2}(\tan)\frac{x}{2} - \frac{1}{3} \left( \tan^{-1} \right) \frac{x}{3} \right)$

C.  $\left( \tan^{-1} \right) \frac{x}{2} - \left( \tan^{-1} \right) \frac{x}{3}$

D.  $\log \left( \frac{x^2 + 4}{x^2 + 9} \right)$

Answer: B

$$115. \int \frac{x dx}{(x^2 + a^2)(x^2 + b^2)} =$$

$$\text{A. } \frac{1}{2(b^2 - a^2)} \log \left( \frac{x^2 + a^2}{x^2 + b^2} \right)$$

$$\text{B. } \frac{1}{b^2 - a^2} \log \left( \frac{x^2 + a^2}{x^2 + b^2} \right)$$

$$\text{C. } \frac{1}{a^2 - b^2} \log \left( \frac{x^2 + a^2}{x^2 + b^2} \right)$$

$$\text{D. } \frac{1}{2(a^2 - b^2)} \log \left( \frac{x^2 + a^2}{x^2 + b^2} \right)$$

**Answer: A**

$$116. \int \frac{x dx}{(x^2 + 9)(x^2 + 16)} =$$

$$A. \frac{1}{7} \left( \frac{1}{3} (\tan^{-1}) \frac{x}{3} - \frac{1}{4} (\tan^{-1}) \frac{x}{4} \right)$$

$$B. \frac{1}{14} \log \left( \frac{x^2 + 16}{x^2 + 9} \right)$$

$$C. \frac{1}{14} \log \left[ (x^2 + 9)(x^2 + 16) \right]$$

$$D. \frac{1}{14} \log \left( \frac{x^2 + 9}{x^2 + 16} \right)$$

**Answer: D**



**Watch Video Solution**

$$117. \int \frac{(a - b)\sin x + (a + b)\cos x}{a\sin x + b\cos x} dx$$

A.  $x + \log(a\sin x + b\cos x) + C$

B.  $\frac{1}{a^2 + b^2} \log(a\sin x + b\cos x)$

C.  $\frac{a^2 + b^2}{a^2 - b^2} x + \frac{1}{a^2 + b^2} \log(a\sin x + b\cos x)$

D. none of these

**Answer: A**



**Watch Video Solution**

$$118. \int \frac{2\sin x - \cos x}{2\cos x + \sin x} dx =$$

A.  $-\log(\sin x + 2\cos x) + C$



B.  $\frac{1}{2} \log (\sin x+2 \cos x)+C$

C.  $2 \log (\sin x+2 \cos x)+C$

D.  $\log (1 /(\sin x+2 \cos x))+C$

**Answer: D**



**Watch Video Solution**

119.  $\int \frac{\sin x - \cos x}{\cos x + \sin x} dx =$

A.  $1 /(\sin x + \cos x)+C$

B.  $-\log (\sin x + \cos x)+C$

C.  $(\log) 1 /((\sin x + \cos x))+C$

D. none of these

**Answer: C**



**Watch Video Solution**

120.  $\int \frac{\cos 2x}{(\cos x + \sin x)^2} dx =$

A.  $(-1)/(\sin x + \cos x) + c$

B.  $\log(\sin x + \cos x) + c$

C.  $\log(\sin x - \cos x) + c$

D.  $\log(\sin x + \cos x)^2 + c$

**Answer: B**



Watch Video Solution

$$121. \int \frac{3\sin x + 2\cos x}{3\cos x + 2\sin x} dx$$

A.  $\frac{12}{13}x - \frac{5}{13} \log (3 \cos x + 2 \sin x)$

B.  $\frac{12}{13}x - \frac{5}{13} \log (3 \cos x + 2 \sin x)$

C.  $\frac{5}{13}x + \frac{12}{13} \log (3\cos x + 2 \sin x)$

D.  $\frac{5}{13}x - \frac{12}{13} \log (3 \cos x + 2 \sin x)$

**Answer: B**



Watch Video Solution

122.  $\int \frac{\sin x + 5\cos x}{3\sin x + 2\cos x} dx$

A.  $x + 1/15 \log (3 \sin x + 2\cos x) + C$

B.  $1/3 x + 1/15 \log (3 \sin x + 2\cos x) + C$

C.  $x + \log (3 \sin x + 2\cos x) + C$

D.  $x + 1/3 \log (3 \sin x + 2\cos x) + C$

**Answer: C**



**Watch Video Solution**

123.  $\int \frac{1}{1 + \cot x} dx =$

A.  $\frac{1}{2}x + \frac{1}{2} \log (\sin x + \cos x)$

B.  $\frac{1}{2}x - \frac{1}{2} \log (\sin x + \cos x)$

C.  $\log (1 + \tan x)$

D.  $x + \log (\sin x + 2\cos x)$

**Answer: B**



**Watch Video Solution**

124.  $\int \frac{\sec x dx}{a \cos x + b \sin x} =$

A.  $\frac{1}{a} \log (a \cot x + b)$

B.  $a \log (a + b \tan x)$

C.  $b \log (a+ b \tan x)$

D.  $\frac{1}{b} \log (a+b \tan x)$

**Answer: D**



**Watch Video Solution**

125.  $\int \frac{dx}{\sqrt{3x+5} - \sqrt{3x+2}} =$

A.  $\frac{2}{27} \left[ (3x+5)^{\frac{3}{2}} + (3x+2)^{\frac{3}{2}} \right]$

B.  $\frac{2}{27} \left[ (3x+5)^{\frac{3}{2}} - (3x+2)^{\frac{3}{2}} \right]$

C.  $\frac{1}{9} \left[ (3x+5)^{\frac{3}{2}} + (3x+2)^{\frac{3}{2}} \right]$

$$D. \frac{1}{9} \left[ (3x + 5)^{\frac{3}{2}} - (3x + 2)^{\frac{3}{2}} \right]$$

**Answer: A**



**Watch Video Solution**

$$126. \int \frac{dx}{(x+3)(x-3)} =$$

A.  $\frac{1}{3} \log \left( \frac{(x+3)}{(x-3)} \right)$

B.  $\frac{1}{6} \log (3x)$

C.  $\frac{1}{6} \log \left( \frac{(x-3)}{(x)} \right)$

D.  $\frac{1}{6} \log \left( \frac{(x-3)}{(x+3)} \right)$

**Answer: D**



Watch Video Solution

$$127. \int \frac{\sin x}{\sqrt{4 - \cos^2 x}} dx$$

A.  $\sin^{-1}\left(\frac{\cos x}{2}\right)$

B.  $\frac{1}{2}\sin^{-1}\left(\frac{\cos x}{2}\right)$

C.  $-\frac{1}{2}\sin^{-1}\left(\frac{\cos x}{2}\right)$

D.  $-\sin^{-1}\left(\frac{\cos x}{2}\right)$

**Answer: D**



Watch Video Solution



$$128. \int \frac{6x^2 dx}{\sqrt{9 - x^3}} =$$

A.  $\sin^{-1} x^3$

B.  $-\sqrt{9 - x^3}$

C.  $4\sqrt[2]{9 - x^3}$

D.  $-4\sqrt[2]{9 - x^3}$

**Answer: D**



**Watch Video Solution**

$$129. \int \frac{dx}{\sqrt{1 - 9x^2}} =$$

A.  $\frac{1}{3}(\sin^{-1})(3x)$

B.  $3\sin^{-1}(3x)$

C.  $\sqrt{1 - 9x^2}$

D.  $3\sqrt{1 - 9x^2}$

**Answer: A**



**Watch Video Solution**

130.  $\int \frac{dx}{9 - x^2} =$

A.  $\left(\sin^{-1}\right)\frac{x}{3}$

B.  $\frac{1}{3}\left(\sin^{-1}\right)\frac{x}{3}$

C.  $\frac{1}{6} \log \left( \frac{(3-x)}{(3+x)} \right)$

D.  $\frac{1}{6} \log \left( \frac{(3+x)}{(3-x)} \right)$

**Answer: D**



**Watch Video Solution**

131.  $\int \frac{dx}{4x^2 + 1} =$

A.  $\frac{1}{2} \left( \tan^{-1} \right) 2x$

B.  $\left( \tan^{-1} \right) 2x$

C.  $\left( \tan^{-1} \right) \frac{x}{2}$

D.  $\frac{1}{2} \tan^{-1} \left( \frac{x}{2} \right)$

**Answer: A**



**Watch Video Solution**

$$132. \int \frac{dx}{\sqrt{25 + 9x^2}} =$$

A.  $\sinh^{-1}\left(\frac{3x}{5}\right) + C$

B.  $\frac{1}{5} \sin^{-1}\left(\frac{3x}{5}\right)$

C.  $\frac{1}{3} \sinh^{-1}\left(\frac{3x}{5}\right) + C$

D.  $\log(25 - 9x^2)$

**Answer: C**



**Watch Video Solution**

$$133. \int \frac{10^{\frac{\pi}{2}} dx}{\sqrt{10^{-x} - 10^x}} =$$

A.  $\frac{1}{\log 10} \sin^{-1}(10^x)$

B.  $\frac{1}{\log 10} \sinh^{-1}(10^x)$

C.  $2\sqrt{10^{-x} + 10^x}$

D.  $\frac{2}{\sqrt{10^{-x} + 10^x}}$

**Answer: A**



**Watch Video Solution**

134.  $\int \frac{dx}{\sqrt{4x + 2 + x^2}} =$

A.  $2\sqrt{x^2 + 4x + 2}$

B.  $\cosh^{-1}(x + 2)$

C.  $\cosh^{-1}\left(\frac{x + 2}{2}\right)$

D.  $\cosh^{-1}\left(\frac{x + 2}{\sqrt{2}}\right)$

**Answer: D**



**Watch Video Solution**

135.  $\int \frac{\sin x \cos x}{1 + \cos^4 x} dx =$

A.  $\frac{1}{2} \cot^{-1}(\cos^2 x)$

B.  $\frac{1}{2} \tan^{-1}(\cos^2 x)$

C.  $2 \cot^{-1}(\cos^2 x)$

D.  $2 \tan^{-1}(\cos^2 x)$

**Answer: A**



**Watch Video Solution**

136.  $\int \frac{dx}{\sqrt{\cos^4 x - \cos^2 x \sin^2 x}} =$

A.  $\sinh^{-1}(\tan x) + C$

B.  $\sin^{-1}(\tan x) + C$

C.  $-\cos^{-1}(\tan x) + C$

D.  $\cosh^{-1}(\tan x) + C$

**Answer: C**



**Watch Video Solution**

137.  $\int \frac{(1+x)^2}{x(1+x^2)} dx =$

A.  $\log x + 2\tan^{-1}x$

B.  $\log x - 2\tan^{-1}x$

C.  $\log \left[ x(1+x^2) \right]$



$$D. \frac{1}{4} \log \left( \frac{x}{1+x^2} \right)$$

**Answer: A**



**Watch Video Solution**

$$138. \int \frac{1+t^2}{1+t^4} dt =$$

$$A. \sqrt{2} \tan^{-1} \left( \frac{t^2 - 1}{\sqrt{2}t} \right)$$

$$B. \frac{1}{\sqrt{2}} \tan^{-1} \left( \frac{t^2 - 1}{t\sqrt{2}} \right)$$

$$C. \frac{1}{\sqrt{2}} \tan^{-1} \left( \frac{1-t^2}{\sqrt{2}t} \right)$$

$$D. \sqrt{2} \tan^{-1} \left( \frac{1-t^2}{\sqrt{2}t} \right)$$

**Answer: B**



**Watch Video Solution**

$$139. \int \frac{4x^3}{1+x^8} dx =$$

A.  $\frac{9x^4}{9+x^9}$

B.  $\tan^{-1} \left( \frac{x^4}{1+x^8} \right)$

C.  $\tan^{-1} x^4$

D. none of these

**Answer: C**



**Watch Video Solution**

**140.** For the function  $f(x) = 1 + 3^x \log 3$ , the antiderivative  $F$  assumes the value 7 for  $x = 2$ . The value of  $x$  for which the curve  $y = F(x)$  cuts the abscissa ( $x$ -axis) is

A.  $x = 3$

B.  $x = 1$

C.  $x = 0$

D.  $x = -1$

**Answer: B**



Watch Video Solution

141. If an antiderivative of  $f(x)$  is  $e^x$  and that of  $g(x)$  is  $\cos x$ , then  $\int f(x) \cdot \cos x dx + \int g(x) \cdot e^x dx$

A.  $f(x) \cdot g(x)$

B.  $f(x) + g(x)$

C.  $e^x \cos x$

D.  $e^x \cos x + f(x) \cdot g(x)$

**Answer: C**



Watch Video Solution

142. If  $f(x) = \cos x - \cos^2 x + \cos^3 x + \dots \rightarrow \int f(x) dx =$

A.  $(\tan)x/2$

B.  $x + (\tan) x/2$

C.  $x - 1/2 (\tan) x/2$

D.  $x - (\tan) x/2$

**Answer: D**



**Watch Video Solution**

143. If  $I = \int \tan^{-1} \left( \frac{2x}{1-x^2} \right) \cdot dx$  then  $I - 2x \cdot \tan^{-1} x =$

A.  $\log(1 + x^2)$

B.  $\frac{\log(2x)}{1 + x^2}$

C.  $-\log(1 + x^2)$

D.  $\log(x/(1+x))$

**Answer: C**



**Watch Video Solution**

144.  $\int \frac{2}{1 - x^4} dx = k \log\left(\frac{1 + x}{1 - x}\right) + \tan^{-1}x$  then  $k =$

A. 1

B. (1/2)

C. 2

D. (-1)

**Answer: B**



**Watch Video Solution**

145.  $\int \frac{dx}{(x^2 + 1)(x^2 + 4)} = k \tan^{-1} x + l \left( \tan^{-1} \right) \frac{x}{2}$  then

A.  $k = 2/3$

B.  $l = 2/3$

C.  $k = -2/3$

D.  $l = -1/6$

**Answer: D**



**Watch Video Solution**

146.  $\int \frac{dx}{x - x^3} = A(\log) \frac{x^2}{1 - x^2}$ , then A =

A. 2

B. (1/2)

C. (2/3)

D. (1/3)

**Answer: B**



**Watch Video Solution**



147.  $\int (\sin 2x + \cos 2x) dx = \frac{1}{\sqrt{2}} \sin(2x - a)$  then  $a =$

A.  $\frac{5\pi}{4}$

B.  $-\frac{5\pi}{4}$

C.  $\frac{\pi}{4}$

D.  $\frac{3\pi}{4}$

**Answer: B**



**Watch Video Solution**

148. If  $I_1 = \int \sin^{-1} x dx$  and  $I_2 = \int \sin^{-1} \sqrt{1 - x^2} dx$  then

A.  $I_1 = I_2$

B.  $I_2 = \frac{\pi}{2}I_1$

C.  $I_1 + I_2 = \frac{\pi}{2}x$

D.  $I_1 + I_2 = \frac{\pi}{2}$

**Answer: C**



**Watch Video Solution**

149.  $\int \frac{d^2}{dx^2} (\tan^{-1}x) dx =$

A.  $\frac{1}{1+x^2}$

B.  $\tan^{-1}x$

C.  $x \tan^{-1}x - \frac{1}{2} \log(1+x^2)$

D.  $-\frac{1}{1+x^2}$

**Answer: A**



**Watch Video Solution**

150. If  $f(x) = \int \frac{x^2 + \sin^2 x}{1+x^2} \sec^2 x dx$  and  $f(0) = 0$ , then  $f(1) =$

A.  $1 - \frac{\pi}{4}$

B.  $\frac{\pi}{4} - 1$

C.  $\tan 1 - \frac{\pi}{4}$

D. none of these

Answer: C



Watch Video Solution

151. In  $n (\neq 1) \in N$  and  $I_n = \int \operatorname{cosec}^n dx$  then

$$(n - 1) \left( \int \operatorname{cosec}^{n-2} \cot x = \right.$$

A.  $(n - 2)I_{n-2}$

B.  $(n - 1)I_{n-1}$

C.  $(n - 1)I_{n-2}$

D.  $(n - 2)I_{n-1}$

Answer: A



Watch Video Solution

152. If  $n (\neq 1) \in N$  and  $I_n = \int \sec^n x dx$  then

$$(n - 1)I_n - (n - 2)I_{n-2} =$$

A.  $\frac{\sec^{n-2} x \cdot \tan x}{n - 1}$

B.  $\sec^{n-2} x \cdot \tan x$

C.  $\frac{\sec^n x \cdot \tan x}{n}$

D.  $\sec^n x \cdot \tan x$

**Answer: B**



**Watch Video Solution**

153. If  $n \in \mathbb{N}$  and  $I_n = \int \sin^n x dx$  then  $nI_n - (n-1)I_{n-2} =$

A.  $\sin^{n-1}x \cdot \cos x$

B.  $-\sin^{n-1}x \cdot \cos x$

C.  $x \cdot \sin^n x$

D.  $-x \sin^n x$

**Answer: B**



**Watch Video Solution**

154. If  $n \in \mathbb{N}$  and  $I_n = \int \cos^n x dx$  then

$nI_n - \cos^{n-1}x \cdot \sin x =$

A.  $I_{n-2}$

B.  $I_{n-1}$

C.  $(n - 1)I_{n-2}$

D.  $(n - 2)I_{n-2}$

**Answer: C**



**Watch Video Solution**

**155.** If  $n( \neq 1) \in N$  and  $I_n = \int \tan^n x dx$  then  $I_n + I_{n-2} =$

A.  $\frac{\tan^{n-2}x}{n - 2}$

B.  $\frac{\tan^{n-1}x}{n}$

C.  $\frac{\tan^{n-1}x}{n-1}$

D.  $\frac{\tan^{n-2}x}{n}$

**Answer: C**



**Watch Video Solution**

156. If  $n (\neq 1) \in N$  and  $I_n = \int \cot^n x dx$  then  $I_n + \frac{\cot^{n-1}x}{n-1}$

A.  $I_{n-1}$

B.  $I_{n-2}$

C.  $-I_{n-2}$

D.  $-I_{n-1}$



**Answer: C**



**Watch Video Solution**

157. If  $n (\neq 1) \in N$  and  $I_n = \int \frac{e^x}{x^n} dx$  then  $I_n + \frac{e^x}{(n-1)x^{n-1}}$

A.  $I_{n-1}$

B.  $\frac{I_{n-1}}{n-1}$

C.  $\frac{I_{n-2}}{n-2}$

D.  $I_{n-2}$

**Answer: B**



**Watch Video Solution**

158. If  $n \in N$  and  $I_n = \int (\log x)^n dx$ , then  $I_n + nI_{n-1} =$

A.  $(\log x)^{n-1}$

B.  $(\log x)^n$

C.  $x(\log x)^n$

D.  $x. (\log x)^{n-1}$

**Answer: C**



**Watch Video Solution**

159. If  $I_n = \int x^n e^x dx$  where  $n \in N$ , then  $I_n + nI_{n-1} =$

A.  $x^n e^x$

B.  $x^{n-1} \cdot e^x$

C.  $\frac{1}{n} x^n e^x$

D.  $n x^{n-1} \cdot e^x$

**Answer: A**



**Watch Video Solution**

160.  $\int \frac{\tan^m x}{\sin x \cos x} dx =$

A.  $\frac{\tan^{m-1} x}{m-1}$

B.  $\tan^m x$

C.  $m \tan^m x$

D.  $\frac{\tan^m x}{m}$

**Answer: D**

 **Watch Video Solution**

161.  $\int \frac{dx}{\sqrt{2x^2 + 7x + 3}} =$

A.  $\cosh^{-1} \left( \frac{4x + 7}{5} \right)$

B.  $\sinh^{-1} \left( \frac{4x + 7}{5} \right)$

C.  $\frac{1}{\sqrt{2}} \cosh^{-1} \left( \frac{4x + 7}{5} \right)$

$$D. \frac{1}{\sqrt{2}} \sinh^{-1} \left( \frac{4x + 7}{5} \right)$$

Answer: C



Watch Video Solution

$$162. \int \frac{dx}{\sqrt{2x^2 + 3x + 4}} =$$

$$A. \sinh^{-1} \left( \frac{4x + 3}{\sqrt{23}} \right)$$

$$B. \frac{1}{\sqrt{2}} \sinh^{-1} \left( \frac{4x + 3}{\sqrt{23}} \right)$$

$$C. \frac{1}{\sqrt{2}} \cosh^{-1} \left( \frac{4x + 3}{\sqrt{23}} \right)$$

$$D. \cosh^{-1} \left( \frac{4x + 3}{\sqrt{23}} \right)$$

Answer: B



Watch Video Solution

$$163. \int \frac{dx}{\sqrt{2x^2 + 3x + 4}} =$$

A.  $\sin^{-1}\left(\frac{4x - 3}{\sqrt{41}}\right)$

B.  $\frac{1}{\sqrt{2}} \sinh^{-1}\left(\frac{4x - 3}{\sqrt{41}}\right)$

C.  $\sqrt{2} \sin^{-1}\left(\frac{4x - 3}{\sqrt{41}}\right)$

D.  $\frac{1}{\sqrt{2}} \sin^{-1}\left(\frac{4x - 3}{\sqrt{41}}\right)$

Answer: D



Watch Video Solution

164.  $\int (\sqrt{\tan x} + \sqrt{\cot x}) dx$  is equal to

A.  $\sqrt{2} \tan^{-1} \left( \frac{\tan x - 1}{\sqrt{2 \tan x}} \right)$

B.  $\tan^{-1} \left( \frac{\tan x - 1}{\sqrt{2 \tan x}} \right)$

C.  $\sqrt{2} \tan^{-1} \left( \frac{1 - \tan x}{\sqrt{2 \tan x}} \right)$

D.  $\sqrt{2} \tan^{-1} \left( \frac{1 - \tan x}{\sqrt{2 \tan x}} \right)$

**Answer: A**



Watch Video Solution

$$165. \int \frac{\cos\theta - \sin\theta}{\sqrt{\sin 2\theta}} d\theta =$$

A.  $\log \left| \cos\theta - \sin\theta + \sqrt{\sin 2\theta} \right| + c$

B.  $\log \left| \sin\theta - \cos\theta + \sqrt{\sin 2\theta} \right| + c$

C.  $\sin^{-1}(\sin\theta - \cos\theta) + c$

D.  $\sin^{-1}(\sin\theta + \cos\theta) + c$

**Answer: D**



**Watch Video Solution**

$$166. \int \frac{1}{\cos(x-a)\cos(x-b)} dx =$$



$$\text{A. } \frac{1}{\cos(a - b)} \log_e \left| \frac{\cos(x - a)}{\cos(x - b)} \right| + c$$

$$\text{B. } \frac{1}{\cos(a - b)} \log_e \left| \frac{\sin(x - a)}{\sin(x - b)} \right| + c$$

$$\text{C. } \frac{1}{\sin(a - b)} \log_e \left| \frac{\sin(x - a)}{\sin(x - b)} \right| + c$$

$$\text{D. } \frac{1}{\sin(a - b)} \log_e \left| \frac{\cos(x - a)}{\cos(x - b)} \right| + c$$

**Answer: D**



**Watch Video Solution**

$$167. \int \tan 2x \cdot \tan 3x \cdot \tan 5x dx =$$

$$\text{A. } \frac{1}{2} \log (\sec 2x) - \frac{1}{3} \log (\sec 3x) - \frac{1}{5} \log (\sec 5x) + c$$

$$\text{B. } \frac{1}{2} \log (\sec 2x) + \frac{1}{3} \log (\sec 3x) + \frac{1}{5} \log (\sec 5x) + c$$

C.  $\frac{1}{5} \log (\sec 5x) - \frac{1}{2} \log (\sec 2x) - \frac{1}{3} \log (\sec 3x) + c$

D. none of these

**Answer: C**



**Watch Video Solution**

**168.**  $\int \tan x \cdot \tan 2x \cdot \tan 3x dx =$

A.  $\frac{1}{3} \log |\sec 3x| - \frac{1}{2} \log |\sec 2x| + \log |\sec x| + c$

B.  $\frac{1}{3} \log |\sec 3x| - \frac{1}{2} \log |\sec 2x| - \log |\sec x| + c$

C.  $\frac{1}{3} \log |\sec 3x| + \frac{1}{2} \log |\sec 2x| + \log |\sec x| + c$

D. none of these

**Answer: B**



**Watch Video Solution**

169.  $\int \frac{\sqrt{\tan x}}{\sin x \cos x} dx = -f(x) + c$ , then  $f(x) =$

A.  $-\operatorname{cosec}^2 x$

B.  $-\frac{1}{5} \operatorname{cosec}^2 x$

C.  $5 \operatorname{cosec}^2 x$

D.  $\frac{1}{5} \operatorname{cosec}^2 x$

**Answer: B**



**Watch Video Solution**

$$170. \int \frac{dx}{\sin(x - \alpha)\cos(x - \beta)} =$$

A.  $\frac{1}{\cos(\alpha - \beta)} [\log\sin(x - \alpha) + \log\sec(x - \beta)]$

B.  $\log\sin(x - \alpha) + \log\sec(x - \beta)$

C.  $\log\sin(x - \alpha)$

D.  $\log\sin(x - \beta)$

**Answer: A**



**Watch Video Solution**

$$171. \int \frac{dx}{x^6 + x^4} =$$

A.  $-\frac{1}{3x^3} + \frac{1}{x} + \operatorname{cosec}^{-1}x$

B.  $-\frac{1}{3x^3} + \frac{1}{x} + \cot^{-1}x$

C.  $-\frac{1}{3x^3} + \frac{1}{x} + \tan^{-1}x$

D.  $-\frac{1}{3x^3} + \frac{1}{x} + \sin^{-1}x$

**Answer: C**



**Watch Video Solution**

172.  $\int e^{\tan x}(\sec x - \sin x)dx =$

A.  $e^{\tan x} \cdot \sin x$

B.  $e^{\tan x}(1 - \cos x)$

C.  $e^{\tan x} \cos x$

D.  $e^{\tan x} (\sin x - 1)$

**Answer: C**



**Watch Video Solution**

173.  $\int \left( \sqrt{\tan x} + \sqrt{\cot x} dx, x \in \left( 0, \frac{\pi}{2} \right) \right)$

A.  $\sqrt{2} \sin^{-1}(\cos x - \sin x)$

B.  $\sqrt{2} \sin^{-1}(\sin x - \cos x)$

C.  $\sqrt{2}(\sin x + \cos x)$

D.  $-\sqrt{2} \sin^{-1}(\sin x + \cos x)$

**Answer: B**



**Watch Video Solution**

174.  $\int \sqrt{1 + 2\cot x(\cot x + \operatorname{cosec} x)} dx =$

A.  $2 \log (\cos (x/2))$

B.  $1/2 \log (\cos (x/2))$

C.  $2 \log (\sin (x/2))$

D.  $\log \sin x - \log (\operatorname{cosec} x - \cot x)$

**Answer: C**



**Watch Video Solution**

175.

$$\int \frac{e^{\tan^{-1}x}}{1+x^2} \left[ \left( \sec^{-1} \sqrt{1+x^2} \right)^2 + \cos^{-1} \left( \frac{1-x^2}{1+x^2} \right) \right] dx, x > 0$$

A.  $e^{\tan^{-1}x \cdot \tan^{-1}x}$

B.  $\frac{1}{2} e^{\tan^{-1}x} (\tan^{-1}x)^2$

C.  $e^{\tan^{-1}x} \left( \sec^{-1} \sqrt{1+x^2} \right)^2$

D.  $e^{\tan^{-1}x} \left( \operatorname{cosec}^{-1} \sqrt{1+x^2} \right)^2$

**Answer: C**



**Watch Video Solution**



176.

If

$$\int \frac{(3x^2 + 2x)dx}{x^6 + 2x^5 + x^4 + 2x^3 + 2x^2 + 5} = \frac{1}{A} \tan^{-1} \left( \frac{x^B + x^2 + c}{D} \right) + I$$

then  $A+B + C +D =$

A. 7

B. 6

C. 5

D. 8

**Answer: D**



**Watch Video Solution**

$$177. \int \frac{\cos\theta - \sin\theta}{\sqrt{\sin 2\theta}} d\theta =$$

A. 1

B. 2

C. 3

D. 4

**Answer: C**



**Watch Video Solution**

**178.**

If

$$\int (x^9 + x^6 + x^3)(2x^6 + 3x^3 + 6)^{\frac{1}{3}} = \frac{1}{A} (2x^9 + 3x^6 + 6x^3)^B$$

then  $(AB)/4 =$

A. 6

B. 7

C. 8

D. 9

**Answer: C**



**Watch Video Solution**

179. If  $\int \frac{(x - 1)e^x}{(x + 1)^3} dx = \frac{Ae^x}{(x + 1)^B} + k$ , then  $B^A =$

A. 1

B. 2

C. 3

D. 4

**Answer: B**



**Watch Video Solution**

**180.** If  $\int (\log x)^2 dx = x[f(x)]^2 + Ax[f(x) - 1] + c$  then

A.  $f(x) = \log x, A = 2$

B.  $f(x) = \log x, A = -2$

C.  $f(x) = -\log x, A = 2$

D.  $f(x) = -\log x, A = -2$

**Answer: B**



**Watch Video Solution**

$$181. \int \frac{d[f^2(x)]}{f(x) + f^2(x)} =$$

A.  $2\log[1 + f^2(x)]$

B.  $2 \log (1+f(x))$

C.  $\log (1+f(x))$

D.  $\log(1 + f^2(x))$

**Answer: B**



**Watch Video Solution**

$$182. \int \frac{x + (\cos^{-1} 3x)^2}{\sqrt{1 - 9x^2}} dx =$$

$$A. c - \frac{1}{9} \left[ \sqrt{1 - 9x^2} + (\cos^{-1} 3x)^3 \right]$$

$$B. c + \frac{1}{9} \left[ \sqrt{1 - 9x^2} + (\cos^{-1} 3x)^3 \right]$$

$$C. c - \sqrt{1 - 9x^2} + (\cos^{-1} 3x)^3$$

$$D. c - \frac{1}{9} \left[ \sqrt{1 - 9x^2} + (\cos^{-1} 3x)^2 \right]$$

**Answer: A**



**Watch Video Solution**

183.  $\int 2^{2^{2^x}} \cdot 2^{2^x} \cdot 2^x dx =$

A.  $2^{2^{2^x}} (\log 2)^3$

B.  $2^{2^x} (\log 2)^2$

C.  $2^{2^{2^x}} \cdot \frac{1}{(\log 2)^3}$

D.  $2^{2^x} \cdot \frac{1}{(\log 2)^3}$

**Answer: C**



**Watch Video Solution**

184.  $\int \frac{5 \tan x}{\tan x - 2} dx = x + a \log(\sin x - 2 \cos x)$  then  $a =$

A. 1

B. 2

C. (-1)

D. (-2)

**Answer: B**



**Watch Video Solution**

185.  $\int \frac{\sec x}{\sqrt{\cos 2x}} dx =$

A.  $2\sin^{-1}(\tan x)$

B.  $\tan^{-1}\left(\frac{\tan x}{2}\right)$

C.  $\sin^{-1}(\tan x)$



D.  $\frac{1}{2} \tan^{-1}(2 \tan x)$

**Answer: C**



**Watch Video Solution**

186.  $\int \frac{\sin^8 x - \cos^8 x}{1 - 2 \sin^2 x \cos^2 x} dx =$

A.  $(-1/2 \sin 2x)$

B.  $1/2 \sin 2x$

C.  $1/2 \sin x$

D.  $(-1/2 \sin x)$

**Answer: A**



Watch Video Solution

$$187. \int 2^x [f(x)\log 2 + f'(x)] dx =$$

A.  $2^x f'(x)$

B.  $2^x f(x)$

C.  $2^x \log 2 f(x)$

D.  $\log 2 f(x)$

**Answer: B**



Watch Video Solution

$$188. \int \frac{dx}{(x-1)\sqrt{x^2-1}} =$$

$$A. -\sqrt{\frac{x-1}{x+1}}$$

$$B. -\sqrt{\frac{x+1}{x-1}}$$

$$C. \sqrt{\frac{x-1}{x+1}}$$

$$D. \sqrt{\frac{x+1}{x-1}}$$

**Answer: B**



**Watch Video Solution**

$$189. \int (1 + x \tan x)^{-2} dx = \frac{1}{x + f(x)} + c \text{ then } f(x) =$$

A.  $x \tan x$

B.  $\cot x$

C.  $\tan x$

D.  $x \cot x$

**Answer: B**



**Watch Video Solution**

190.  $\int \frac{dx}{x^6 + x^4} =$

A.  $\frac{3}{4x^4} \left( x^6 + x^4 + 1 \right)^{\frac{4}{3}}$

B.  $\frac{3}{4} \left( x^6 + x^4 + 1 \right)^{\frac{4}{3}}$

$$C. \frac{1}{x^4} (x^6 + x^4 + 1)^{\frac{4}{3}}$$

$$D. \frac{4}{3x} (x^6 + x^4 + 1)^{\frac{4}{3}}$$

**Answer: A**

 **Watch Video Solution**

$$191. \int \frac{x+1}{x(xe^x+1)^2} dx =$$

$$A. \log\left(\frac{xe^x}{1+e^x}\right) - \frac{1}{1+xe^x}$$

$$B. \log\left(\frac{1+e^x}{xe^x}\right) + \frac{1}{1+xe^x}$$

$$C. \log\left(\frac{xe^x}{1+e^x}\right) + \frac{1}{1+xe^x}$$

$$D. \log\left(\frac{1 + e^x}{xe^x}\right) - \frac{1}{1 + xe^x}$$

**Answer: C**

 [Watch Video Solution](#)

$$192. \int \frac{dx}{(x + 2)\sqrt{x + 1}} =$$

A.  $\tan^{-1}\sqrt{x + 1}$

B.  $-\tan^{-1}\sqrt{x + 1}$

C.  $2\tan^{-1}\sqrt{x + 1}$

D.  $-2\tan^{-1}\sqrt{x + 1}$

**Answer: C**



**Watch Video Solution**

193.  $\int e^{3x} [3\tan x + \sec^2 x] dx =$

A.  $e^{3x}\tan x$

B.  $\frac{1}{3}e^{3x}\tan x$

C.  $3e^{3x}\tan x$

D.  $3e^{3x} + e^{3x}(3x)\tan x$

**Answer: A**



**Watch Video Solution**

$$194. \int \frac{x dx}{(x^2 + 16)(x^2 + 25)} =$$

A.  $\frac{1}{18} \log \left( \frac{x^2 + 16}{x^2 + 25} \right)$

B.  $\frac{1}{18} \log \left( \frac{x^2 + 25}{x^2 + 16} \right)$

C.  $\frac{1}{9} \log \left( \frac{x^2 + 16}{x^2 + 25} \right)$

D.  $\frac{1}{9} \log \left( \frac{x^2 + 25}{x^2 + 16} \right)$

**Answer: A**



**Watch Video Solution**



$$195. \int \frac{dx}{\sqrt{3x+5} - \sqrt{3x+2}} =$$

$$A. \frac{2}{27} \left[ (3x+5)^{\frac{3}{2}} - (3x+2)^{\frac{3}{2}} \right]$$

$$B. \frac{2}{27} \left[ (3x+2)^{\frac{3}{2}} - (3x+5)^{\frac{3}{2}} \right]$$

$$C. \frac{2}{27} \left[ (-3x+2)^{\frac{3}{2}} - (3x+5)^{\frac{3}{2}} \right]$$

$$D. \frac{2}{27} \left[ (3x+5)^{\frac{3}{2}} + (3x+2)^{\frac{3}{2}} \right]$$

**Answer: D**



**Watch Video Solution**

196.  $\int \frac{2\sin x - \cos x}{2\cos x + \sin x} dx =$

A.  $\frac{4}{29}x - \frac{19}{29}\log(2\cos x + 5\sin x)$

B.  $\frac{4}{29}x + \frac{19}{29}\log(2\cos x + 5\sin x)$

C.  $(-)\frac{4}{29}x + \frac{19}{29}\log(2\cos x + 5\sin x)$

D.  $(-)\frac{4}{29}x - \frac{19}{29}\log(2\cos x + 5\sin x)$

**Answer: C**



**Watch Video Solution**

197. Evaluate :  $\int \frac{(3\sin x - 2)\cos x}{5 - \cos^2 x - 4\sin x} dx.$

A.  $\frac{3}{4} \sin x + \frac{21}{16} \log (4 \sin x + 7)$

B.  $\frac{3}{4} \sin x - \frac{21}{16} \log (4 \sin x + 7)$

C.  $\frac{21}{16} \log (4 \sin x + 7)$

D.  $\frac{21}{16} \sin x - \frac{3}{4} \log (4 \sin x + 7)$

**Answer: B**



**Watch Video Solution**

198.  $\int \frac{x dx}{(x - 4)(x - 2)} =$

A.  $\log \left[ \frac{(x - 4)^2}{x - 2} \right] + C$

$$\text{B. } \log \left[ \frac{x - 2}{((x - 4))^2} \right] + C$$

$$\text{C. } \log \left[ \frac{x - 4}{x - 2} \right] + C$$

$$\text{D. } \frac{1}{2} \log [(x-4)/(x-2)] + C$$

**Answer: A**



**Watch Video Solution**

$$199. \int \frac{dx}{x(9 + x^2)} =$$

$$\text{A. } \frac{1}{9} \log \left( \frac{x^2}{9 + x^2} \right)$$

$$\text{B. } \frac{1}{9} \log \left( \frac{9 + x^2}{x^2} \right)$$

$$\text{C. } \frac{1}{18} \log \left( \frac{x^2}{9 + x^2} \right)$$

$$\text{D. } \frac{1}{18} t \left( a n^{-1} \right) \frac{x}{3} + \log x$$

**Answer: C**



**Watch Video Solution**

$$200. \int \frac{dx}{x^2 + x + 1} \text{ is :}$$

$$\text{A. } \frac{2}{\sqrt{3}} \tan^{-1} \left( \frac{2x + 1}{\sqrt{3}} \right)$$

$$\text{B. } \frac{1}{\sqrt{3}} \tan^{-1} \left( \frac{2x + 1}{\sqrt{3}} \right)$$

$$\text{C. } -\frac{2}{\sqrt{3}}\tan^{-1}\left(\frac{2x+1}{\sqrt{3}}\right)$$

$$\text{D. } -\frac{1}{\sqrt{3}}\tan^{-1}\left(\frac{2x+1}{\sqrt{3}}\right)$$

**Answer: A**



**Watch Video Solution**

**201.** Find  $\int \left( \sqrt{x} + \frac{1}{\sqrt{x}} \right) dx$ .

A.  $\frac{1}{3}x^{\frac{1}{3}} + 2x^{\frac{1}{2}} + c$

B.  $\frac{2}{3}x^{\frac{3}{2}} + \frac{1}{2}x^2 + c$

C.  $\frac{2}{3}x^{\frac{3}{2}} + 2x^{\frac{1}{2}} + c$

$$D. \frac{3}{2}x^{\frac{3}{2}} + \frac{1}{2}x^{\frac{1}{2}} + c$$

**Answer: C**



**Watch Video Solution**

**202.** Choose the correct answer

If  $\frac{d}{dx}f(x) = 4x^3 - \frac{3}{x^4}$  such that  $f(2) = 0$ . Then  $f(x)$  is

A.  $x^4 + \frac{1}{x^3} - \frac{129}{8}$

B.  $x^3 + \frac{1}{x^4} + \frac{129}{8}$

C.  $x^4 + \frac{1}{x^3} + \frac{129}{8}$

D.  $x^3 + \frac{1}{x^4} - \frac{129}{8}$

**Answer: A**



**Watch Video Solution**

$$203. \int \frac{10x^9 + 10^x \log(10)}{10^x + x^{10}} dx$$

A.  $10^x - x^{10} + c$

B.  $10^x + x^{10} + c$

C.  $(10^x - x^{10})^{-1} + c$

D.  $\log(x^{10} + 10^x) + c$

**Answer: D**



**Watch Video Solution**



204.  $\int \frac{dx}{\sin^2 x \cos^2 x}$

A.  $\tan x + \cot x + c$

B.  $\tan x - \cot x + c$

C.  $\tan x \cot x + c$

D.  $\tan x - \cot 2x + c$

**Answer: B**



**Watch Video Solution**

205. Choose the correct answer

$\int \frac{\sin^2 x - \cos^2 x}{\sin^2 x \cos^2 x} dx$  is equal to

A.  $\tan x + \cot x + c$

B.  $\tan x + \operatorname{cosec} x + c$

C.  $(-\tan x + \cot x + c)$

D.  $\tan x + \sec x + c$

**Answer: A**



**Watch Video Solution**

206. Evaluate  $\int \frac{e^x(1+x)}{\cos^2(xe^x)} dx$

A.  $-\cot(xe^x)$

B.  $\tan(xe^x) + c$

C.  $\tan e^x + c$

D.  $\cot e^x + c$

**Answer: B**



**Watch Video Solution**

207.  $\int \frac{dx}{x^2 + 2x + 2} =$

A.  $x \tan^{-1}(x + 1) + c$

B.  $\tan^{-1}(x + 1) + c$

C.  $(x + 1) \tan^{-1} x + c$

D.  $\tan^{-1} + c$

**Answer: B**



**Watch Video Solution**

208.  $\int \frac{dx}{\sqrt{9x - 4x^2}}$  equals

A.  $\frac{1}{9} \sin^{-1} \left( \frac{9x - 8}{8} \right) + c$

B.  $\frac{1}{2} \sin^{-1} \left( \frac{8x - 9}{9} \right) + c$

C.  $\frac{1}{3} \sin^{-1} \left( \frac{9x - 8}{8} \right) + c$

D.  $\frac{1}{2} \sin^{-1} \left( \frac{9x - 8}{8} \right) + c$

**Answer: B**



**Watch Video Solution**

209. Choose the correct answer

$$\int \frac{x dx}{(x-1)(x-2)} \text{ equals}$$

A.  $\log \left| \frac{(x-1)^2}{x-2} \right| + c$

B.  $\log \left| \frac{(x-2)^2}{x-1} \right| + c$

C.  $\log \left( \frac{x-1}{x-2} \right)^2 + c$

D.  $\log |(x-1)(x-2)| + c$

**Answer: B**



Watch Video Solution

$$210. \int \frac{dx}{x(x^2 + 1)} =$$

A.  $\log x - \frac{1}{2} \log(x^2 + 1) + c$

B.  $\log x + \frac{1}{2} \log(x^2 + 1) + c$

C.  $\log x + \frac{1}{2} \log(x^2 + 1) + c$

D.  $\frac{1}{2} \log x + \log(x^2 + 1) + c$

**Answer: A**



**Watch Video Solution**

$$211. \int x^2 (e^{x^3}) dx =$$

A.  $\frac{1}{3}e^{x^3} + c$

B.  $\frac{1}{3}e^{x^2} + c$

C.  $\frac{1}{2}e^{x^3} + c$

D.  $\frac{1}{2}e^{x^2} + c$

**Answer: A**



**Watch Video Solution**

212.  $\int e^x \sec x (1 + \tan x) dx.$

A.  $e^x \cos x + c$

B.  $e^x \sec x + c$

C.  $e^x \sin x + c$

D.  $e^x \tan x + c$

**Answer: B**



**Watch Video Solution**

213.  $\int \sqrt{1+x^2} dx$  is equal to

A.  $\frac{x}{2} \sqrt{1+x^2} + \frac{1}{2} \log(x + \sqrt{1+x^2}) + c$

B.  $\frac{2}{3} (1+x^2)^{\frac{3}{2}} + c$

C.  $\frac{2}{3} x (1+x^2)^{\frac{3}{2}} + c$

D.  $\frac{x^2}{2} \sqrt{1+x^2} + \frac{1}{2} x^2 \log(x + \sqrt{1+x^2}) + c$



Answer: A



Watch Video Solution

214. Choose the correct answer

$\int \sqrt{x^2 - 8x + 7} \, dx$  is equal to

A.  $\frac{1}{2}(x - 4)\sqrt{x^2 - 8x + 7} + 9\log\left[(x - 4) + \sqrt{x^2 - 8x + 7}\right]$

B.

$$\frac{1}{2}(x + 4)\sqrt{x^2 - 8x + 7} + 9\log\left[(x + 4) + \sqrt{x^2 - 8x + 7}\right]$$

C.

$$\frac{1}{2}(x - 4)\sqrt{x^2 - 8x + 7} - 3\sqrt{2}\log\left[(x - 4) + \sqrt{x^2 - 8x + 7}\right]$$

D.  $\frac{1}{2}(x - 4)\sqrt{x^2 - 8x + 7} - \frac{9}{2}\log\left[(x - 4) + \sqrt{x^2 - 8x + 7}\right]$

**Answer: D**



**Watch Video Solution**

$$215. \int \frac{dx}{e^x + e^{-x}} dx =$$

A.  $\tan^{-1}(e^x) + c$

B.  $\tan^{-1}(e^{-x}) + c$

C.  $\log(e^x - e^{-x}) + c$

D.  $\log(e^x + e^{-x}) + c$

**Answer: A**



**Watch Video Solution**

216.  $\int \frac{\cos 2x dx}{(\cos x + \sin x)^2} dx =$

A.  $\frac{-1}{(\sin x + \cos x)^2} + c$

B.  $\log(\sin x + \cos x)$

C.  $\log(\sin x - \cos x)$

D.  $\frac{1}{(\sin x + \cos x)^2} + c$

**Answer: B**



**Watch Video Solution**

217.  $\int e^x(\cos x - \sin x) dx$  is equal to

A.  $e^x \cos x + c$

B.  $e^x \sin x + c$

C.  $-e^x \cos x + c$

D.  $-e^x \cos x + c$

**Answer: A**



**Watch Video Solution**

218. If  $\int \frac{3e^x - 5e^{-x}}{4e^x + 5e^{-x}} dx = ax + b \log(4e^x + 5e^{-x}) + c$

A.  $a = -1/8, b = 7/8$

B.  $a = 1/8, b = 7/8$

C.  $a = -1/8, b = -7/8$

D.  $a = 1/7, b = -7/8$

**Answer: A**



**Watch Video Solution**

219.  $\int \frac{\cos 2x - \cos 2\theta}{\cos x - \cos \theta} dx$  is equal to

A.  $2(\sin x + x \cos \theta) + x$

B.  $2(\sin x - x \cos \theta) + x$

C.  $2(\sin x + 2x \cos \theta) + x$

D.  $2(\sin x - 2x \cos \theta) + x$

**Answer: A**

 [Watch Video Solution](#)

$$220. \int \frac{dx}{\sin(x-a)\sin(x-b)} =$$

- A.  $\sin(b-a)\log \left[ \frac{\sin(x-b)}{\sin(x-a)} \right] + c$
- B.  $\operatorname{cosec}(b-a)\log \left[ \frac{\sin(x-a)}{\sin(x-b)} \right] + c$
- C.  $\operatorname{cosec}(b-a)\log \left[ \frac{\sin(x-b)}{\sin(x-a)} \right] + c$
- D.  $\sin(b-a)\log \left[ \frac{\sin(x-a)}{\sin(x-b)} \right] + c$

**Answer: C**

 [Watch Video Solution](#)

221.  $\int \tan^{-1}\sqrt{x} dx$  is equal to

A.  $(x + 1)\tan^{-1}\sqrt{x} - \sqrt{x} + c$

B.  $x\tan^{-1}\sqrt{x} - \sqrt{x} + c$

C.  $\sqrt{x} - x\tan^{-1}\sqrt{x} + c$

D.  $\sqrt{x} - (x + 1)\tan^{-1}\sqrt{x} + c$

**Answer: A**



**Watch Video Solution**

222.  $\int e^x \left( \frac{1-x}{1+x^2} \right)^2 dx$  equal to

A.  $\frac{e^x}{(1+x^2)^2} + c$

B.  $\frac{-e^x}{(1+x^2)^2} + c$

C.  $\frac{e^x}{(1+x^2)} + c$

D.  $\frac{-e^x}{(1+x^2)} + c$

**Answer: A**



**Watch Video Solution**

223.  $\int \frac{x^9 dx}{(4x^2 + 1)^6}$  is equal to



$$\text{A. } \frac{1}{5x} \left( 4 + \frac{1}{x^2} \right)^{-5} + c$$

$$\text{B. } \frac{1}{5} \left( 4 + \frac{1}{x^2} \right)^{-5} + c$$

$$\text{C. } \frac{1}{10x} (1 + 4x)^{-5} + c$$

$$\text{D. } \frac{1}{10} \left( \frac{1}{x^2} + 4 \right)^{-5} + c$$

**Answer: D**



**Watch Video Solution**

**224.**

**If**

$$\int \frac{dx}{(x+2)(1+x^2)} = a \log(1+x^2) + b \tan^{-1}x + \frac{1}{5} \log(x+2) + c$$

A.  $a = -1/10, b = -2/5$

B.  $a = 1/10, b = -2/5$

C.  $a = -1/10, b = 2/5$

D.  $a = 1/10, b = 2/5$

**Answer: C**



**Watch Video Solution**

225.  $\int \frac{x^3}{x+1} dx$  is equal to

A.  $x + \frac{x^2}{2} + \frac{x^3}{3} - \log(1-x) + c$

B.  $x + \frac{x^2}{2} - \frac{x^3}{3} + \log(1-x) + c$

C.  $x - \frac{x^2}{2} - \frac{x^3}{3} - \log(1 + x) + c$

D.  $x - \frac{x^2}{2} + \frac{x^3}{3} - \log(1 + x) + c$

**Answer: D**



**Watch Video Solution**

226.  $\int \frac{x + \sin x}{1 + \cos x} dx$  is equal to

A.  $\log(1 + \cos x) + c$

B.  $\log(x + \sin x) + c$

C.  $x - (\tan x)/2 + c$

D.  $x + (\tan x)/2 + c$

**Answer: D**



**Watch Video Solution**

227.  $\int \frac{x^3}{\sqrt{1+x^2}} dx = a(1+x^2)^{3/2} + b\sqrt{1+x^2} + c$ , then :

A.  $a = 1/3$  ,  $b = 1$

B.  $a = -1/3$  ,  $b = 1$

C.  $a = -1/3$  ,  $b = -1$

D.  $a = 1/3$  ,  $b = -1$

**Answer: D**



**Watch Video Solution**

228.  $\int (1 + 4x + 6x^2 + 4x^3 + x^4) dx =$

A.  $4 + 12x + 12x^2 + 4x^3$

B.  $\frac{(1 + 5)^5}{5}$

C.  $x + 2x^2 + 2x^3 + x^4 + \frac{x^5}{5} + C$

D. None of these

**Answer: B**



**Watch Video Solution**

$$229. \int \left( \frac{e^{3\tan^{-1}x}}{1+x^2} \right) dx$$

A.  $\frac{e^{3\sec^{-1}x}}{2x}$

B.  $\frac{1}{3}e^{3\tan^{-1}x}$

C.  $e^{3\tan^{-1}x}$

D. None of these

**Answer: B**



**Watch Video Solution**

$$230. \int \frac{dx}{\sin^2 x \cos^2 x}$$

A. minus cot x + tan x

B. minus cot x - tanx

C. cot x -tan x

D. cot x + tan x

**Answer: A**



**Watch Video Solution**

$$231. \int \frac{\log(x^2)}{x} dx =$$

A.  $(\log x)^2$

B.  $\frac{1}{2}(\log x)^2$

C.  $\log(x^2)$

D.  $2\log(x^2)$

**Answer: A**



**Watch Video Solution**

232.  $\int \frac{x^3 + x^2 + 1}{x + 1} dx =$

A.  $\frac{x^2}{2} + \log(x + 1)$

B.  $\frac{x^3}{2} + \log(x + 1)$

C.  $\frac{x^4}{4} + x^3 + \log x$

D. None of these



**Answer: B**



**Watch Video Solution**

$$233. \int \frac{dx}{x + \sqrt{x}} =$$

A.  $\log(1 + \sqrt{x})$

B.  $\frac{1}{2} \log(x + \sqrt{x})$

C.  $2 \log(1 + \sqrt{x})$

D.  $\frac{x^2}{2} + \frac{2}{3} x^{\frac{3}{2}}$

**Answer: C**



**Watch Video Solution**

234.  $\int \frac{x^2 + 1}{x^4 + 1} dx =$

A.  $\frac{1}{\sqrt{2}} \tan^{-1} \left( (x^2 + 1) \right)$

B.  $\frac{1}{\sqrt{2}} \tan^{-1} \left( \frac{x^2 + 1}{\sqrt{2}} \right)$

C.  $\frac{1}{\sqrt{2}} \tan^{-1} \left( (x^2 - 1) \right)$

D.  $\frac{1}{\sqrt{2}} \tan^{-1} \left( \frac{x^2 - 1}{\sqrt{2}} \right)$

**Answer: D**



**Watch Video Solution**

$$235. \int \frac{dx}{1 - \cos x} =$$

A. cosec x + cot x

B. minus cot x/2

C. minus tan x/2

D. cosec x - cot x

**Answer: B**



**Watch Video Solution**

$$236. \int \frac{1 - \tan x}{1 + \tan x} dx =$$

A.  $\log (\cos x - \sin x)$

B.  $\log (\cos x + \sin x)$

C.  $\log (\sin x - \cos x)$

D.  $\log (1 + \tan x)$

**Answer: B**



**Watch Video Solution**

**237.**  $\int e^x(\sinh x + \cosh x)dx =$

A.  $e^x \sinh x$

B.  $e^x \cos x$

C.  $\sinh 2x$

D.  $\cosh 2x$

**Answer: B**



**Watch Video Solution**

238.  $\int \frac{dx}{e^x + e^{-x}} dx =$

A.  $\sin^{-1}(e^x)$

B.  $\cosh x$

C.  $\tan^{-1} e^x$

D.  $\log(e^x + e^{-x})$

**Answer: C**



**Watch Video Solution**

$$239. \int \frac{\cos\sqrt{x}}{\sqrt{x}} dx$$

A.  $2\cos\sqrt{x}$

B.  $\sqrt{\frac{\cos x}{\sqrt{x}}}$

C.  $\sin\sqrt{x}$

D.  $2\sin\sqrt{x}$

**Answer: D**



**Watch Video Solution**

240.  $\int \frac{dy}{\sqrt{1-x}} =$

A.  $\sin^{-1} \sqrt{x}$

B.  $2\sqrt{1-x}$

C.  $2\sqrt{1-x}$

D.  $\sin^{-1} \sqrt{x}$

**Answer: B**



**Watch Video Solution**

241.  $\int \frac{x^2 - 1}{x^2 + 1} dx =$

A.  $\tan^{-1}x^2$

B.  $x + \tan^{-1}x$

C.  $x - 2\tan^{-1}x$

D.  $\log(1 + s^4)$

**Answer: C**



**Watch Video Solution**

**242.**  $\int \cos\sqrt{x} dx =$

A.  $\sqrt{x} \cdot \sin\sqrt{x}$

B.  $2 \left[ \sqrt{x} \sin\sqrt{x} + \cos\sqrt{x} \right]$



C.  $2 [x\sin\sqrt{x} + \cos\sqrt{x}]$

D.  $\frac{x\sin\sqrt{x}}{2}$

**Answer: B**



**Watch Video Solution**

**243.**  $\int \log x dx =$

A.  $x \log x$

B.  $\log (x+1)$

C.  $x/\log x$

D.  $x \log x - x$

**Answer: D**



**Watch Video Solution**

244. Evaluate  $\int \frac{xe^x}{(1+x)^2} dx$

A.  $(x + 1)e^x$

B.  $\frac{e^x}{x + 1}$

C.  $xe^x$

D. none of these

**Answer: D**



**Watch Video Solution**

245.  $\int \frac{dx}{x(x^n + 1)}$  is equal to :

A.  $\frac{n}{x} \log(x^n + 1)$

B.  $n \log\left(\frac{x}{x^n + 1}\right)$

C.  $\frac{1}{n} \log\left(\frac{x^n}{x^n + 1}\right)$

D.  $\log\left(\frac{x^n}{x^n + 1}\right)$

**Answer: C**



**Watch Video Solution**

$$246. \int \sqrt{1 + \sin\left(\frac{x}{2}\right)} dx =$$

A.  $4 \cos x/2 - 4 \sin x/2$

B.  $\cos x/2 + \sin x/2$

C.  $4 \cos x/4 + 4 \sin x/4$

D.  $-4 \cos x/4 + 4 \sin x/4$

**Answer: D**



**Watch Video Solution**

$$247. \int \frac{dx}{(1 + e^x)(1 + e^{-x})}$$

A.  $\frac{1}{1 + e^x} + c$

B.  $-\frac{1}{1 + e^x} + c$

C.  $\frac{1}{e^x} + c$

D.  $\frac{1}{(1 + e^x)^2} + c$

**Answer: B**



**Watch Video Solution**

248.  $\int e^{\log(\tan x)} dx =$

A.  $\log(\sec x) + c$

B.  $\log(\tan x) + c$

C.  $e^{\tan x} + c$

D.  $\tan x + c$

**Answer: A**



**Watch Video Solution**

249.  $\int e^x (1 + \tan x + \tan^2 x) dx$

A.  $e^x \cos x + c$

B.  $e^x \tan x + c$

C.  $e^x \sec x + c$

D.  $e^x \sin x + c$

**Answer: B**



**Watch Video Solution**

$$250. \int \frac{dx}{\sin x + \cos x} =$$

A.  $\frac{1}{\sqrt{2}} \log \tan \left( x + \frac{\pi}{4} \right) + c$

B.  $\frac{1}{\sqrt{2}} \log \tan \left( \frac{x}{2} + \frac{\pi}{8} \right) + c$

C.  $\log \tan \left( \frac{\pi}{2} + \frac{\pi}{8} \right) + c$

D. 0

**Answer: D**



**Watch Video Solution**

251.  $\int \frac{(x+3)e^x}{(x+4)^2} dx$  is equal to

A.  $\frac{e^x}{x+4} + c$

B.  $\frac{e^x}{x+3} + c$

C.  $\frac{1}{(x+4)^2} + c$

D.  $\frac{e^x}{x+4} + c$

**Answer: A**



**Watch Video Solution**

252. The value of the  $\int \frac{1}{(x-5)^2} dx$  is



A.  $1/x-5 + c$

B. minus  $1/x-5 + c$

C.  $\frac{2}{(x - 5)^3} + c$

D.  $-2(x - 5)^3 + 6$

**Answer: B**



**Watch Video Solution**

253.  $\int \frac{1}{(2x - 5)^2} dx =$

A.  $\frac{1}{(2x - 5)^2} + c$

B.  $\frac{1}{2}(2x - 5)^2 + c$

$$C. \frac{2}{2}(2x - 5)^2 + c$$

$$D. -2(2x - 5)^3 + c$$

**Answer: B**



**View Text Solution**

**254.** The value of the  $\int \frac{2dx}{\sqrt{1 - 4x^2}}$  is

A.  $\sin^{-1}(2x) + c$

B.  $\cos^{-1}(2x) + c$

C.  $\cot^{-1}(2x) + c$

D.  $\tan^{-1}(2x) + c$

**Answer: A**



**Watch Video Solution**

255. The value of  $\int \frac{dx}{\sqrt{2x - x^2}}$  is:

A.  $\sin^{-1}(x - 1) + c$

B.  $\sin^{-1}(1 + x)$

C.  $-\sqrt{2x - x^2} + c$

D.  $\sinh^{-1}(1 + x) + c$

**Answer: A**



**Watch Video Solution**

256.  $\int x^3 \cdot \log x dx =$

A.  $\frac{1}{8} (x^2 \log x - x^4 + c)$

B.  $\frac{1}{16} (4x^4 \log x - x^4 + c)$

C.  $\frac{x^4 \log x}{4} + c$

D.  $\frac{1}{16} (4x^4 \log x + x^4 + c)$

**Answer: B**



**Watch Video Solution**

257. If  $n \in N$  and  $I_n = \int (\log x)^n dx$ , then  $I_n + nI_{n-1} =$

A.  $(x \log x)^n$

B.  $x(\log x)^n$

C.  $n(\log x)^n$

D.  $(\log x)^{n-1}$

**Answer: B**



**Watch Video Solution**

258.  $\int \sqrt{1 + \sin\left(\frac{x}{4}\right)} dx =$

A.  $8 \left( \sin\left(\frac{x}{8}\right) + \cos\left(\frac{x}{8}\right) \right) + c$

B.  $8 \left( \sin\left(\frac{x}{8}\right) - \cos\left(\frac{x}{8}\right) \right) + c$

$$\text{C. } 8 \left( \cos\left(\frac{x}{8}\right) - \sin\left(\frac{x}{8}\right) \right) + c$$

$$\text{D. } \frac{1}{8} \left( \sin\left(\frac{x}{8}\right) - \cos\left(\frac{x}{8}\right) \right) + c$$

**Answer: B**



**Watch Video Solution**

**259. Evaluate :**  $\int e^x \left( \frac{1 + \sin x}{1 + \cos x} \right) dx$

A.  $e^x \frac{\sec^2 x}{2} + c$

B.  $e^x \frac{\tan^2 x}{2} + c$

C.  $e^x \frac{\sec x}{2} + c$

D.  $e^x \tan x + c$

**Answer: B**



**Watch Video Solution**

260.  $\int \sqrt{x} \cdot e^{\sqrt{x}} dx =$

A.  $2\sqrt{x} - e^{\sqrt{x}} - 4(\sqrt{x})e^{\sqrt{x}} + c$

B.  $(2x - 4\sqrt{x} + 4)e^{\sqrt{x}} + c$

C.  $(2x + 4\sqrt{x} + 4)e^{\sqrt{x}} + c$

D.  $(1 - 4\sqrt{x})e^{\sqrt{x}} + c$

**Answer: B**



**Watch Video Solution**

261.  $\int \frac{dx}{\cos x - \sin x}$  is equal to :

A.  $\frac{1}{\sqrt{2}} \log \left[ \tan \left( \frac{x}{2} - \frac{3\pi}{8} \right) \right]$

B.  $\frac{1}{\sqrt{2}} \log \left[ \tan \left( \frac{x}{2} + \frac{3\pi}{8} \right) \right]$

C.  $\frac{1}{\sqrt{2}} \log \left[ \tan \left( \frac{x}{2} - \frac{\pi}{8} \right) \right]$

D. none of these

**Answer: B**



**Watch Video Solution**

262.  $\int - \frac{dx}{x(x^7 + 1)}$  =



$$\text{A. } \log\left(\frac{x^7}{x^7 + 1}\right) + c$$

$$\text{B. } \frac{1}{7}\log\left(\frac{x^7}{x^7 + 1}\right) + c$$

$$\text{C. } \log\left(\frac{x^7 + 1}{x^7}\right) + c$$

$$\text{D. } \frac{1}{7}\log\left(\frac{x^7 + 1}{x^7}\right) + c$$

**Answer: B**



**Watch Video Solution**

$$263. \int \frac{dx}{x^2 + 2x + 2} =$$

$$\text{A. } \sin^{-1}(x + 2) + c$$

B.  $\sinh^{-1}(x + 1) + c$

C.  $\tanh^{-1}(x+1) + c$

D.  $\tan^{-1}(x+1) + c$

**Answer: D**



**Watch Video Solution**

264.  $\int \frac{1 + \tan x}{e^{-x} \cdot \cos x} dx =$

A.  $e^x \sec x + c$

B.  $e^x \tan x + c$

C.  $e^x \tan x + c$

D.  $e^{-x}\sec x + c$

**Answer: A**



**Watch Video Solution**

265.  $\int \frac{\sin 2x}{1 + \cos^2 x} dx =$

A.  $\frac{1}{2} \log (1 + \cos 2x) + c$

B.  $c - \log (1 + \cos^2 x)$

C.  $-\frac{1}{2} \log (1 + \cos^2 x) + c$

D.  $2 \log (1 + \cos^2 x) + c$

**Answer: B**

266.  $\int \frac{dx}{x\sqrt{x^6 - 16}} =$

A.  $\sec^{-1}\left(\frac{x^3}{4}\right) + c$

B.  $\frac{1}{12}\sec^{-1}\left(\frac{x^3}{4}\right)$

C.  $\cosh^{-1}\left(\frac{x^3}{4}\right) + c$

D.  $\frac{1}{3}\sec^{-1}\left(\frac{x^3}{4}\right) + c$

**Answer: B**

$$267. \int \frac{\operatorname{cosec} x}{\cos^2\left(1 + \log \tan\left(\frac{x}{2}\right)\right)} dx =$$

A.  $\tan(1 + \log \tan(x/2)) + c$

B.  $\sin^2\left(1 + \log \tan\left(\frac{x}{2}\right)\right) + c$

C.  $\text{minus } \tan(1 + \log \tan(x/2)) + c$

D.  $\sec^2\left(1 + \log \tan\left(\frac{x}{2}\right)\right) + c$

**Answer: A**



**Watch Video Solution**

268. The value of  $\int \frac{1}{1 + \cos 8x} dx$  is

A.  $(\tan 8x)/8 + c$

B.  $(\tan 2x)/x + c$

C.  $(\tan 4x)/8 + c$

D.  $(\tan 4x)/4 + c$

**Answer: C**



**Watch Video Solution**

269.  $\int \frac{(x^3 + 3x^2 + 3x + 1)}{(x + 1)^5} dx =$

A.  $\tan^{-1}x + c$

B.  $\log(1+x) + c$

C.  $\frac{1}{5} \log(x+1) + c$

D.  $\frac{1}{x+1} + c$

**Answer: D**



**Watch Video Solution**

**270.** The value of  $\int e^x(x^5 + 5x^4 + 1) \cdot dx$  is

A.  $e^x \cdot x^5 + e^x + c$

B.  $e^x \cdot x^5$

C.  $5x^4 \cdot e^x + c$

D.  $e^{(x+1)} \cdot x^5 + c$

**Answer: A**



**Watch Video Solution**

271. The value of  $\int \left( \frac{x^2 + 1}{x^2 - 1} \right) dx$  is

A.  $\log\left(\frac{x+1}{x-1}\right) + c$

B.  $\log\left(\frac{x-1}{x+1}\right) + c$

C.  $\log(x^2 - 1) + c$

D.  $x + \log\left(\frac{x-1}{x+1}\right) + c$



Answer: D



Watch Video Solution

$$272. \int (ax^2 - b) \frac{dx}{x\sqrt{c^2x^2 - (ax^2 + b)^2}}$$

A.  $\cos^{-1} \left[ \frac{ax^2 + b}{cx} \right] + c$

B.  $\cos^{-1} \left[ \frac{ax^2 - b}{cx} \right] + c$

C.  $\sin^{-1} \left[ \frac{ax^2 - b}{cx} \right] + c$

D.  $\sin^{-1} \left[ \frac{ax^2 + b}{cx} \right] + c$

**Answer: D**



**Watch Video Solution**

273. If  $\int \frac{\sin x}{\sin(x - \alpha)} dx = Ax + B \log \sin(x - \alpha) + C$  , then value of (A,B) is :

A.  $\sin \alpha, \cos \alpha$

B.  $\cos \alpha, \sin \alpha$

C.  $-\sin \alpha, \cos \alpha$

D.  $-\cos \alpha, \sin \alpha$

**Answer: B**



**Watch Video Solution**

274.  $\int \frac{dx}{x(x^n + 1)}$  is equal to :

A.  $\frac{1}{n} \log \left( \frac{x^n}{x^n + 1} \right) + c$

B.  $\frac{1}{n} \log \left( \frac{x^n}{x^n + 1} \right) + c$

C.  $\log (x^{(n)}/(x^{(n)} + 1)) + c'$

D. none of these

**Answer: A**



**Watch Video Solution**

275.  $\int \frac{dx}{\cos x - \sin x}$  is equal to :

A.  $\frac{1}{\sqrt{2}} \log \left| \left( \frac{x}{2} - \frac{\pi}{8} \right) \right| + c$

B.  $\frac{1}{\sqrt{2}} \log \left| \left( \frac{x}{2} \right) \right| + c$

C.  $\frac{1}{\sqrt{2}} \log \left| \left( \frac{x}{2} - 3\frac{\pi}{8} \right) \right| + c$

D.  $\frac{1}{\sqrt{2}} \log \left| \left( \frac{x}{2} + 3\frac{\pi}{8} \right) \right| + c$

**Answer: D**



**Watch Video Solution**

276.  $\int \left[ \frac{\log x - 1}{1 + (\log x)^2} \right]^2 dx =$

A.  $\frac{x}{(\log x)^2 + 1} + c$

B.  $x \frac{e^x}{1 + x^2} + c$

C.  $\frac{x}{x^2 + 1} + c$

D.  $\frac{\log x}{(\log x)^2 + 1} + c$

**Answer: A**



**Watch Video Solution**

277.  $\int (1 - \cot x) \operatorname{cosec}^2 x \, dx$  equals :

A.  $\tan (x/2) + c$

B.  $\cot (x/2) + c$

C.  $\frac{1}{2} \tan (x/2) +c$

D.  $2 \tan (x/2)+c$

**Answer: A**



**Watch Video Solution**

278.  $\int \frac{\cos x - \sin x}{\cos x + \sin x} (2 + 2 \sin 2x) dx =$

A.  $\sin 2x +c$

B.  $\cos 2x = c$

C.  $\tan 2x +c$

D. none of these

Answer: A



Watch Video Solution

$$279. \int \frac{dx}{(x-p)\sqrt{(x-p)(x-q)}} =$$

$$\text{A. } -\frac{2}{p-q} \sqrt{\frac{x-p}{x-q}} + c$$

$$\text{B. } -\frac{2}{p-q} \sqrt{\frac{x-q}{x-p}} + c$$

$$\text{C. } \frac{1}{\sqrt{(x-p)(x-q)}} + c$$

D. none of these

Answer: B



Watch Video Solution

$$280. \int \frac{dx}{(2x - 7)\left(\sqrt{x^2 - 7x + 12}\right)} =$$

A.  $2\sec^{-1}(2x - 7) + c$

B.  $\sec^{-1}(2x - 7) + c$

C.  $\frac{1}{2}\sec^{-1}(2x - 7) + c$

D. none of these

**Answer: B**



**Watch Video Solution**



281.  $\int \left( \sqrt{x} - \frac{1}{\sqrt{x}} \right)^2 dx.$

A.  $2 \log \left| \frac{1 + \sqrt{1-x}}{\sqrt{x}} \right| + \cos^{-1} \sqrt{x} + c$

B.  $-2 \left[ \log \left| \frac{1 + \sqrt{1-x}}{\sqrt{x}} \right| + \cos^{-1} \sqrt{x} \right] + c$

C.  $2 \log \left| \frac{\sqrt{x}}{1 + \sqrt{1-x}} \right| + \cos^{-1} \sqrt{x} + c$

D. none of these

**Answer: B**



**Watch Video Solution**

282.  $\int \cos x \cdot \log \left( \tan \left( \frac{x}{2} \right) \right) dx =$

- A.  $\sin x \cdot \log(\tan (x/2)) +c$
- B.  $\sin x \cdot \log(\tan (x/2))-x +c$
- C.  $\sin x \cdot \log(\tan (x/2)) +c$
- D. None of these

**Answer: B**



**Watch Video Solution**

283.  $\int \frac{(x^2 - 1)x}{x^4 \sqrt{2x^4 - 2x^2 + 1}} dx$  is equal to :

$$\text{A. } 2\sqrt{2 - \frac{2}{x^2} + \frac{1}{x^4}} + c$$

$$\text{B. } 2\sqrt{2 + \frac{2}{x^2} + \frac{1}{x^4}} + c$$

$$\text{C. } \frac{1}{2}\sqrt{2 - \frac{2}{x^2} + \frac{1}{x^4}} + c$$

D. none of these

**Answer: C**



**Watch Video Solution**

$$284. \int \frac{e^x}{x+2} \{1 + (x+2)\log(x+2)\} dx =$$

$$\text{A. } e^x \cdot \log(x+2) + c$$

$$\text{B. } \frac{e^x}{x+2} + c$$

$$C. e^2(x + 2) + c$$

$$D. e^2(x - 2) + c$$

**Answer: A**



**Watch Video Solution**

$$285. \int \sin^2 x \cdot \cos^3 x dx =$$

$$A. \frac{1}{3} \sin^3 x - \frac{1}{5} \sin^5 x + c$$

$$B. \frac{1}{3} \cos^3 x - \frac{1}{5} \sin^5 x + c$$

$$C. \frac{1}{3} \sin^3 x - \frac{1}{5} \sin^5 x + c$$

$$D. \frac{1}{3} \tan^3 x - \frac{1}{5} \sin^5 x + c$$

**Answer: A**



**Watch Video Solution**

$$286. \int e^x \frac{1 + x \log x}{x} dx =$$

A.  $\frac{e^x \log x}{x} + c$

B.  $e^x(1 + \log x) + c$

C.  $e^x \cdot \log x + c$

D.  $xe^x \log x + c$

**Answer: C**



**Watch Video Solution**

$$287. \int \frac{x^5}{x^2 + 1} dx =$$

A.  $\frac{x^4}{4} + \frac{x^2}{2} + \tan^{-1}x + c$

B.  $\frac{x^4}{4} - \frac{x^2}{2} + \frac{1}{2} \log(x^2 + 1) + c$

C.  $\frac{x^4}{4} + \frac{x^3}{2} + \tan^{-1}x + c$

D.  $\frac{x^4}{4} - \frac{x^3}{2} + \tan^{-1}x + c$

**Answer: B**



**Watch Video Solution**

$$288. \int \frac{\sin^3 x + \cos^3 x}{\sin^2 x \cdot \cos^2 x} dx =$$

A.  $\sin x + \cos x + c$

B.  $\tan x + \cot x + c$

C.  $\sec x - \operatorname{cosec} x + c$

D.  $\sin x - \cos x + c$

**Answer: C**



**Watch Video Solution**

289.  $\int \frac{3dx}{2x^2 - x - 1} =$

A.  $\log\left(\frac{x-1}{x+1}\right) + c$

B.  $\log\left(\frac{x+1}{2x+1}\right) + c$

$$C. \log\left(\frac{x-1}{2x-1}\right) + c$$

$$D. \log\left(\frac{x-1}{2x+1}\right) + c$$

**Answer: D**



**Watch Video Solution**

$$290. \int \frac{1}{x} \sqrt{\frac{x-1}{x+1}} dx =$$

A.  $\cosh^{-1}x - \sec^{-1}x + c$

B.  $\cosh^{-1}x + \sec^{-1}x + c$

C.  $\sinh^{-1}x - \sec^{-1}x + c$

D.  $\sinh^{-1}x - \operatorname{cosec}^{-1}x + c$



**Answer: A**



**Watch Video Solution**

$$291. \int \frac{dx}{x(1 + \log x)^2} =$$

$$A. \int \frac{-1}{2(1 + \log x)^2 + c}$$

$$B. \int \frac{1}{2(1 + \log x)^2 + c}$$

$$C. \int - \frac{1}{(1 + \log x) + c}$$

$$D. \int \frac{-1}{3(1 + \log x)^2 + c}$$

**Answer: A**



**Watch Video Solution**

292.  $\int \frac{\sin^6 x}{\cos^8 x} dx =$

A.  $\tan 7x + c$

B.  $\frac{\tan^7 x}{7} + c$

C.  $\frac{\tan 7x}{7} + c$

D.  $\sec^7 x + c$

**Answer: B**



**Watch Video Solution**

293.  $\int e^x (1 - \cot x + \cot^2 x) dx =$

A.  $e^x \cdot \cot x + c$

B.  $-e^x \cot x + c$

C.  $e^x \operatorname{cosec} x + c$

D.  $-e^x \operatorname{cosec} x + c$

**Answer: B**



**Watch Video Solution**

294.  $\int (x + 1)^2 e^x dx =$

A.  $xe^x + c$

B.  $x^2 e^x + c$

C.  $(x + 1)e^x + c$

D.  $(x^2 + 1)e^x + c$

**Answer: D**

 **Watch Video Solution**

295.  $\int \frac{dx}{\sqrt{x}(x+9)} =$

A.  $\frac{2}{3} \tan^{-1}(\sqrt{x}) + c$

B.  $\frac{2}{3} \tan^{-1}\left(\frac{\sqrt{x}}{3}\right) + c$

C.  $\tan^{-1}\sqrt{x} + c$

D.  $\tan^{-1}\left(\frac{\sqrt{x}}{3}\right) + c$

**Answer: B**



**Watch Video Solution**

$$296. \int \frac{3^x dx}{\sqrt{9^x - 1}} =$$

A.  $\frac{1}{\log 3} \log \left[ 3^x + \sqrt{9^x - 1} \right] + c$

B.  $\frac{1}{\log 3} \log \left[ 3^x - \sqrt{9^x - 1} \right] + c$

C.  $\frac{1}{\log 9} \log \left[ 3^x - \sqrt{9^x - 1} \right] + c$

D.  $\frac{1}{\log 3} \log \left[ 9^x + \sqrt{9^x - 1} \right] + c$

**Answer: A**



**Watch Video Solution**

$$297. \int \frac{dx}{7 + 5\cos x} =$$

$$\text{A. } \frac{1}{\sqrt{3}} \tan^{-1} \left( \frac{1}{\sqrt{3}} \tan \left( \frac{x}{2} \right) \right) + c$$

$$\text{B. } \frac{1}{\sqrt{6}} \tan^{-1} \left( \frac{1}{\sqrt{6}} \tan \left( \frac{x}{2} \right) \right) + c$$

$$\text{C. } \frac{1}{7} \tan^{-1} \left( \tan \left( \frac{x}{2} \right) \right) + c$$

$$\text{D. } \frac{1}{4} \tan^{-1} \left( \tan \left( \frac{x}{2} \right) \right) + c$$

**Answer: B**



**Watch Video Solution**

298.  $\int \frac{dx}{1 - \cos x - \sin x} =$

A.  $\log \left( 1 + \cot \left( \frac{x}{2} \right) \right) + c$

B.  $\log \left( 1 - \tan \left( \frac{x}{2} \right) \right) + c$

C.  $\log \left( 1 - \cot \left( \frac{x}{2} \right) \right) + c$

D.  $\log \left( 1 + \tan \left( \frac{x}{2} \right) \right) + c$

**Answer: C**



**Watch Video Solution**

299. The integral  $\int \left( 1 + x - \frac{1}{x} \right) e^{x + \frac{1}{x}} dx$  is equal to :

A.  $(x + 1) \cdot x \left( x + x^{-1} \right) + c$

B.  $(x - 1) \cdot x \left( x + x^{-1} \right) + c$

C.  $-xe \left( x + x^{-1} \right) + c$

D.  $x \cdot e^{x+x^{-1}} + c$

**Answer: D**



**Watch Video Solution**

300.  $\int \frac{1 + x + \sqrt{x + x^2}}{\sqrt{x} + \sqrt{1 + x}} dx =$

A.  $\frac{1}{2} \sqrt{1 + x} + c$

B.  $\frac{2}{3} (1 + x)^{\frac{3}{2}} + c$



C.  $\sqrt{1+x} + c$

D.  $2(1+x)^{\frac{3}{2}} + c$

**Answer: B**



**Watch Video Solution**

301.  $\int \frac{\sqrt{\tan x}}{\sin x \cos x} dx = -f(x) + c$ , then  $f(x) =$

A.  $2\sqrt{\tan x}$

B.  $-2\sqrt{\tan x}$

C.  $-2\sqrt{\cot x}$

D.  $2\sqrt{\cot x}$

**Answer: D**



**Watch Video Solution**

302.  $\int \frac{(3 - x^2)e^x}{1 - 2x + x^2} dx = e^x \cdot f(x) + c$ , then  $f(x) =$

A.  $(1+x)/(1-x)$

B.  $(1-x)/(1+x)$

C.  $(1+x)/(x-1)$

D.  $(x-1)/(1+x)$

**Answer: A**



**Watch Video Solution**

303.  $\int \frac{dx}{(x + 100)\sqrt{x + 99}} = f(x) + c$  then  $f(x) =$

A.  $2(x+100)^{(1/2)}$

B.  $3(x + 100)^{\frac{1}{2}}$

C.  $2\tan^{-1}\sqrt{x + 99}$

D.  $2\tan^{-1}\sqrt{x + 100}$

**Answer: C**



**Watch Video Solution**

304.

$$\int \sin^{-1}\left(\frac{2x}{1+x^2}\right) dx = f(x) - \log(1+x^2) + c \text{ then } f(x) =$$

A.  $2x \tan^{-1} x$

B.  $-2x \tan^{-1} x$

C.  $x \tan^{-1} x$

D.  $-x \tan^{-1} x$

**Answer: A**



**Watch Video Solution**

305.  $\int \frac{x^{49} \tan^{-1} x^{50}}{1 + x^{100}} dx = k \left[ \tan^{-1} \left( x^{50} \right) \right]^2 + c$  then  $k =$

A. 18264

B. -0.02

C. 1/100

D. -0.01

**Answer: C**



**Watch Video Solution**

306.  $\int \frac{\sin x}{\cos x(1 + \cos x)} dx = f(x) + c \Rightarrow f(x) =$

A.  $\log\left(\frac{1 + \cos x}{\cos x}\right)$

B.  $\log\left(\frac{\cos x}{1 + \cos x}\right)$

C.  $\log\left(\frac{\sin x}{1 + \cos x}\right)$

D.  $\log\left(\frac{1 + \sin x}{\cos x}\right)$

**Answer: A**



**Watch Video Solution**

**307.** Observe the following statements

$$A: \int \left( \left( \frac{x^2 - 1}{x^2} \right) \cdot e^{\left( x^2 + \frac{1}{x} \right)} dx = e^{\frac{x^2 + 1}{x}} + c \right)$$

R:  $\int f'(x) \cdot e^{f(x)} dx = f(x) + c$  Then which of the following is true?

A. Both A and R are true and R is not the correct reason for A

B. Both A and R are true and R is the correct reason for A

C. A is true, R is false

D. A is false, R is false

**Answer: C**



**Watch Video Solution**

$$308. \int \sqrt{\frac{x}{a^3 - x^3}} dx = g(x) + c \Rightarrow g(x) =$$

A.  $\frac{2}{3} \cos^{-1} x$

B.  $\frac{2}{3} \sin^{-1} \left( \frac{x^3}{a^3} \right)$

C.  $\frac{2}{3} \sin^{-1} \left( \sqrt{\frac{x^3}{a^3}} \right)$

D.  $\frac{2}{3} \cos^{-1} \left( \frac{x}{a} \right)$

**Answer: C**



**Watch Video Solution**



309.  $\int \frac{dx}{x^2 + 2x + 2} = f(x) + c \Rightarrow f(x)$

A.  $\tan^{-1}(x + 1)$

B.  $2\tan^{-1}(x + 1)$

C.  $-\tan^{-1}(x + 1)$

D.  $3\tan^{-1}(x + 1)$

**Answer: A**



**Watch Video Solution**

310. The value of  $\int e^x \frac{2 - x^2}{(1 - x)\sqrt{1 - x^2}} dx =$

$$\text{A. } e^x \sqrt{\frac{1+x}{1-x}} + c$$

$$\text{B. } e^x \sqrt{(1+x)} + c$$

$$\text{C. } e^x \sqrt{(1-x)} + c$$

$$\text{D. } e^x \sqrt{\frac{1-x}{1+x}} + c$$

**Answer: A**



**Watch Video Solution**

$$311. \int (e^{a \log x} + e^{x \log a}) dx =$$

$$\text{A. } \frac{x^{a+1}}{a+1} + c$$

$$\text{B. } \frac{x^{a+1}}{a+1} + c$$

C.  $x^{a+1} + a^x + c$

D.  $\frac{x^{a+1}}{a+1} + \frac{a^x}{\log a} + c$

**Answer: D**



**Watch Video Solution**

312.  $\int \frac{dx}{x^2 + 4x + 13} =$

A.  $\log(x^2 + 4x + 13) + c$

B.  $\frac{1}{3} \tan^{-1} \left( \frac{x+2}{3} \right) + c$

C.  $\log(2x + 4) + c$

D.  $\frac{2x + 4}{(x^2 + 4x + 13)^2} + c$

**Answer: B**



**Watch Video Solution**

313.  $\int e^{-\log x} dx =$

A.  $e^{-\log x} + c$

B.  $-xe^{-\log x} + c$

C.  $e^{\log x} + c$

D.  $\log |x| + c$

**Answer: D**



**Watch Video Solution**

$$314. \int \frac{a^{\frac{x}{2}}}{\sqrt{a^{-x} - a^x}} dx =$$

A.  $\frac{1}{\log a} \sin^{-1}(a^x) + c$

B.  $\frac{1}{\log a} \tan^{-1}(a^x) + c$

C.  $2\sqrt{a^{-x} - a^x} + c$

D.  $\log(a^x - 1) + c$

**Answer: A**



**Watch Video Solution**

$$315. \int \frac{\sin x}{\sin(x - a)} dx =$$

A.  $x \cos a - \sin a \cdot \text{Log}(x-a) + c$

B.  $x \sin a + c$

C.  $x \sin a + \sin a \cdot \log \sin(x-a) + c$

D.  $x \cos a + \sin a \cdot \log \sin(x-a) + c$

**Answer: D**

 **Watch Video Solution**

316.  $\int \frac{f'(x)}{f(x) \log[f(x)]} dx =$

A.  $f(x)/(\log f(x)) + c$

B.  $f(x) \cdot \text{Log} f(x) + c$

C.  $\log[\log f(x)] + c$

D.  $1/\log[\log f(x)] + c$

**Answer: C**

 **Watch Video Solution**

317.  $\int \frac{e^x}{(2 + e^x)(e^x + 1)} dx =$

A.  $\log\left(\frac{e^x + 1}{e^x + 2}\right) + c$

B.  $\log\left(\frac{e^x + 2}{e^x + 1}\right) + c$

C.  $\frac{e^x + 1}{e^x + 2} + c$

$$D. \frac{e^x + 2}{e^x + 1} + c$$

**Answer: A**

 **Watch Video Solution**

$$318. \int \cos \left[ 2 \cot^{-1} \sqrt{\frac{1-x}{1+x}} \right] dx =$$

A.  $\frac{1}{2}x^2 + c$

B.  $\frac{1}{2} \sin \left[ 2 \cot^{-1} \sqrt{\frac{1-x}{1+x}} \right] + c$

C.  $-\frac{1}{2}x^2 + c$

D.  $\frac{1}{2}x + c$



**Answer: C**



**Watch Video Solution**

**319.** If  $f(x) = \cos x - \cos^2 x + \cos^3 x + \dots \rightarrow \int f(x) dx =$

A.  $\tan(x/2) + c$

B.  $x + \tan(x/2) + c$

C.  $x - 1/2 (\tan) x/2 + C$

D.  $x - \tan(x/2) + c$

**Answer: D**



**Watch Video Solution**

$$320. \int \frac{(e^x - e^{-x})dx}{(e^x + e^{-x})\log(\cosh x)} =$$

A.  $\log(\tanh x) + c$

B.  $2\log(e^x + e^{-x}) + c$

C.  $2\log(e^x - e^{-x}) + c$

D.  $\log[\log(\cosh x)] + c$

**Answer: D**



**Watch Video Solution**

$$321. \int \frac{dx}{\sin(x-a)\sin(x-b)} =$$

A.  $1/(\sin(x-a)\sin(x-b)) =$

B.  $\frac{-1}{\sin(a-b)} \log \left| \frac{\sin(x-a)}{\sin(x-b)} \right| + c$

C.  $\log \sin(x-a) \cdot \sin(x-b) + c$

D.  $\log \left| \frac{\sin(x-a)}{\sin(x-b)} \right| + c$

**Answer: A**



**Watch Video Solution**

**322.** If an antiderivative of  $f(x)$  is  $e^x$  and that of  $g(x)$  is  $\cos x$ , then  $\int f(x) \cdot \cos x dx + \int g(x) \cdot e^x dx$

A.  $f(x) \cdot g(x) + c$

B.  $f(x) + g(x) + c$

C.  $e^x \cos x + c$

D.  $f(x) - g(x) + c$

**Answer: C**



**Watch Video Solution**

323.  $\int e^{x \log a} \cdot e^x dx =$

A.  $a^x / (\log ae) + c$

B.  $\frac{e^x}{1 + \log_e a} + c$

C.  $(ae)^x + c$

$$D. \frac{(ae)^x}{\log_e ae} + c$$

**Answer: D**

 **Watch Video Solution**

$$324. \int \sqrt{e^x - 1} dx =$$

$$A. 2 \left[ \sqrt{e^x - 1} - \tan^{-1} \sqrt{e^x + 1} \right] + c$$

$$B. \left[ \sqrt{e^x - 1} - \tan^{-1} \sqrt{e^x + 1} \right] + c$$

$$C. \left[ \sqrt{e^x - 1} + \tan^{-1} \sqrt{e^x + 1} \right] + c$$

$$D. 2 \left[ \sqrt{e^x - 1} - \tan^{-1} \sqrt{e^x + 1} \right] + c$$

**Answer: A**



Watch Video Solution

325. If  $I_1 = \int \sin^{-1} x dx$  and  $I_2 = \int \sin^{-1} \sqrt{1 - x^2} dx$  then

A.  $I_1 = I_2$

B.  $I_2 = \frac{\pi}{2} I_1$

C.  $I_1 + I_2 = \frac{\pi}{2} x$

D.  $I_1 + I_2 = \frac{\pi}{2}$

**Answer: C**



Watch Video Solution

$$326. \int \cos^{-\frac{3}{7}} x \cdot \sin^{\frac{11}{7}} x dx =$$

$$A. \log \left| \sin^{\frac{4}{7}} x \right| + c$$

$$B. \frac{4}{7} \tan^{\frac{4}{7}} x + c$$

$$C. -\frac{7}{4} \tan^{-\frac{4}{7}} x + c$$

$$D. \log \left| \cos^{\frac{4}{7}} x \right| + c$$

**Answer: C**



**Watch Video Solution**

$$327. \int \frac{\sin \theta + \cos \theta}{\sqrt{\sin 2\theta}} d\theta =$$

A.  $\log \left| \cos\theta - \sin\theta + \sqrt{\sin 2\theta} \right| + c$

B.  $\log \left| \sin\theta - \cos\theta + \sqrt{\sin 2\theta} \right| + c$

C.  $\sin^{-1}(\sin\theta - \cos\theta) + c$

D.  $\sin^{-1}(\cos\theta - \sin\theta) + c$

**Answer: C**



**Watch Video Solution**

328.  $\int \frac{\cos 2x - 1}{\cos 2x + 1} dx =$

A.  $\tan x - x + c$

B.  $x + \tan x + c$



C.  $x - \tan x + c$

D.  $\text{minus } x - \cot x + c$

**Answer: C**



**Watch Video Solution**

**329.**  $\int e^{3\log x} (x^4 + 1)^{-1} dx$  is equal to :

A.  $\log(x^4 + 1) + c$

B.  $\frac{1}{4} \log(x^4 + 1) + c$

C.  $\text{minus } \log(x^4 + 1) + c$

D. none of these

Answer: B



Watch Video Solution

$$330. \int \frac{dx}{\sin x - \cos x + \sqrt{2}} =$$

A.  $-\frac{1}{\sqrt{2}} \tan\left(\frac{x}{2} + \frac{x}{8}\right)$

B.  $-\frac{1}{\sqrt{2}} \tan\left(\frac{x}{2} + \frac{x}{8}\right) + c$

C.  $-\frac{1}{\sqrt{2}} \cot\left(\frac{x}{2} + \frac{x}{8}\right) + c$

D.  $-\frac{1}{2} \cot\left(\frac{x}{2} + \frac{x}{8}\right) + c$

Answer: D



Watch Video Solution

331. The value of  $\int e^{2x}(2\sin 3x + 3\cos 3x)dx$  is

A.  $e^{2x} \cdot \sin 3x + c$

B.  $e^{2x} \cos 3x + c$

C.  $e^{2x} + c$

D.  $e^{2x}(2\sin 3x) + c$

**Answer: A**



Watch Video Solution

332.  $\int \cos(\log_e x) dx =$

A.  $\frac{1}{2}x \left[ \cos(\log_e x) + \sin(\log_e x) \right] = c$

B.  $x \left[ \cos(\log_e x) + \sin(\log_e x) \right] = c$

C.  $\frac{1}{2}x \left[ \cos(\log_e x) - \sin(\log_e x) \right] = c$

D.  $x \left[ \cos(\log_e x) - \sin(\log_e x) \right] = c$

**Answer: A**



**Watch Video Solution**

**333.** Evaluate :  $\int \frac{x^2}{1-x^6} dx$

A.  $x^3 + c$

B.  $\frac{1}{3} \tan^{-1}(x^3 + c)$

C.  $\log(1 + x^3)$

D. none of these

**Answer: B**



**Watch Video Solution**

334.  $\int \frac{(1+x)^2}{x(1+x^2)} dx =$

A.  $\log_e x + c$

B.  $\log_e x + 2\tan^{-1}x + c$

C.  $\frac{\log_e 1}{x^2 + 1} + c$

D.  $\log_e \left\{ x(x^2 + 1) \right\} + c$

**Answer: B**



**Watch Video Solution**

335.  $\int 32x^3 \cdot (\log x)^2 dx =$

A.  $8x^4(\log x)^2 + c$

B.  $x^4 \left\{ 8(\log x)^2 - 4\log x + 1 \right\} + c$

C.  $x^4 \left\{ 8(\log x^2) - 4\log x \right\} + c$

D.  $x^3 \left\{ (\log x)^2 + 2\log x \right\} + c$

**Answer: B**



**Watch Video Solution**

$$336. \int \frac{\cos x - 1}{\sin x + 1} e^x dx =$$

$$A. \frac{e^x \cos x}{1 + \sin x} + c$$

$$B. c - \frac{e^x \sin x}{1 + \sin x} + c$$

$$C. c - \left( \frac{e^x}{1 + \sin x} + c \right)$$

$$D. c - \frac{e^x \cos x}{1 + \sin x} + c$$

**Answer: A**



**Watch Video Solution**

$$337. \int \frac{x^2 + 1}{x^4 + 1} dx =$$

A.  $\log(x^4 + x^2 + 1) + c$

B.  $\log\left(\frac{x^2 - x + 1}{x^2 + x + 1}\right) + c$

C.  $\frac{1}{2}\log\left(\frac{x^2 - x + 1}{x^2 + x + 1}\right) + c$

D.  $\frac{1}{2}\log\left(\frac{x^2 + x + 1}{x^2 - x + 1}\right) + c$

**Answer: C**



**Watch Video Solution**

**338.**  $\int x^x(1 + \log x)dx$  equals :

A.  $x^x + c$



B.  $x^{2x} + c$

C.  $x^x \cdot \log x$

D.  $\frac{1}{2}(1 + \log x)^2$

**Answer: A**



**Watch Video Solution**

339.  $\int \frac{dx}{(a^2 + x^2)^{\frac{3}{2}}} =$

A.  $\frac{x}{(9a^2 + x^2)^{\frac{1}{2}}} + c$

B.  $\frac{x}{a^2(a^2 + x^2)^{\frac{1}{2}}} + c$

C.  $\frac{1}{a^2(a^2 + x^2)^{\frac{1}{2}} + c}$

D. none of these

**Answer: B**

 **Watch Video Solution**

**340.**

If

$$\int \frac{2x^2 + 3}{(x^2 - 1)(x^2 + 4)} dx = a \log\left(\frac{x - 1}{x + 1}\right) + b \tan^{-1}\left(\frac{x}{2}\right) + c$$

then the values of a and b are

A. 1,-1

B. minus 1,1

C.  $1/2-1/2$

D.  $1/2,1/2$

**Answer: D**



**Watch Video Solution**

341.  $\int e^x \left( \frac{1 + \sin x}{1 + \cos x} \right) dx =$

A.  $-e^x \tan\left(\frac{x}{2}\right) + c$

B.  $-e^x \cot\left(\frac{x}{2}\right) + c$

C.  $-\frac{1}{2}e^x \tan\left(\frac{x}{2}\right) + c$

$$D. \frac{1}{2}e^x \cot\left(\frac{x}{2}\right) + c$$

**Answer: B**



**Watch Video Solution**

$$342. \int \left( \frac{ax^3 + bx^2 + c}{x^4} dx \right) =$$

A.  $a \log x + \frac{b}{x^2} - \frac{c}{3x^3} + k$

B.  $a \log x + \frac{b}{x} - \frac{c}{3x^3} + k$

C.  $a \log x - \frac{b}{x} - \frac{c}{3x^3} + k$

D. none of these

**Answer: C**



**Watch Video Solution**

343.  $\int \tan^5 x dx =$

A.  $\log \left( \frac{1-\tan x}{1+\tan x} \right) + c$

B.  $\log \left( \frac{1+\tan x}{1-\tan x} \right) + c$

C.  $\frac{1}{2} \log \left( \frac{1-\tan x}{1+\tan x} \right) + c$

D.  $\frac{1}{2} \log \left( \frac{1+\tan x}{1-\tan x} \right) + c$

**Answer: D**



**Watch Video Solution**

$$344. \int \frac{e^{m \tan^{-1} x}}{1+x^2} dx =$$

A.  $me^{m \tan^{-1} x} + c$

B.  $\frac{1}{m}e^{\tan^{-1} x} + c$

C.  $\frac{1}{m}e^{m \tan^{-1} x} + c$

D. none of these

**Answer: C**



**Watch Video Solution**

$$345. \int \cos^{-1} \left( \frac{1-x^2}{1+x^2} \right) dx$$

A.  $x \sec^{-1} x + \cosh^{-1} x + c$

B.  $x \sec^{-1} x - \cosh^{-1} x + c$

C.  $x \sec^{-1} x - \sin^{-1} x + c$

D. none of these

**Answer: B**



**Watch Video Solution**

346.  $\int \frac{dx}{2\sqrt{x}(1+x)} dx =$

A.  $\frac{1}{2} \tan^{-1} \sqrt{x} + c$

B.  $\tan^{-1} \sqrt{x} + c$

C.  $2\tan^{-1}\sqrt{x} + c$

D. none of these

**Answer: B**



**Watch Video Solution**

347.  $\int \frac{xdx}{x^2 + 4x + 5} =$

A.  $\frac{1}{2}\log(x^2 + 4x + 5) + 2\tan^{-1}x + c$

B.  $\frac{1}{2}\log(x^2 + 4x + 5) - \tan^{-1}x + c$

C.  $\frac{1}{2}\log(x^2 + 4x + 5) + \tan^{-1}(x + 2) + c$

D.  $\frac{1}{2}\log(x^2 + 4x + 5) + 2\tan^{-1}(x + 2) + c$



Answer: D



Watch Video Solution

348.  $\int \sqrt{\frac{1+x}{1-x}} dx =$

A.  $-\sin^{-1}x - \sqrt{1-x^2} + c$

B.  $\sin^{-1}x + \sqrt{1-x^2} + c$

C.  $\sin^{-1}x - \sqrt{1-x^2} + c$

D.  $-\sin^{-1}x - \sqrt{x^2-1} + c$

Answer: C



Watch Video Solution

349.  $\int x \cdot e^{(x)^2} dx =$

A.  $-\frac{e^2}{2} + c$

B.  $\frac{e^2}{2} + c$

C.  $\frac{e^{x^2}}{2} + c$

D.  $-\frac{e^{x^2}}{2} + c$

**Answer: B**



**Watch Video Solution**

350.  $\int (\sin^4 x - \cos^4 x) dx =$

A.  $-\cos 2x/2+c$

B.  $-(\sin 2x/2) +c$

C.  $\sin 2x/2 + c$

D.  $\cos 2x/2 +c$

**Answer: B**



**Watch Video Solution**

**351.** If  $\int f(x)dx = f(x)$ , then  $\int \{f(x)\}^2 dx =$

A.  $\frac{1}{2}[f(x)]^{20}$

B.  $[f(x)]^3$

C.  $\frac{[f(x)]^3}{3}$

D.  $[f(x)]^2$

**Answer: A**



**Watch Video Solution**

352.  $\int \left( \frac{x+2}{x+4} \right)^2 e^x dx =$

A.  $e^x \left( \frac{x}{x+4} \right) + c$

B.  $e^x \left( \frac{x+2}{x+4} \right) + c$

C.  $e^2 \left( \frac{x-2}{x+4} \right) + c$

D.  $\frac{2xe^2}{x+4} + c$

Answer: A



Watch Video Solution

$$353. \int \frac{dx}{\cos^3 x \sqrt{2 \sin 2x}} =$$

$$\text{A. } \sqrt{\tan x} + \frac{\tan^{\frac{5}{2}} x}{5} + c$$

$$\text{B. } \sqrt{\tan x} + \frac{2}{5} \tan^{\frac{5}{2}} x + c$$

$$\text{C. } 2\sqrt{\tan x} + \frac{2}{5} \tan^{\frac{5}{2}} x + c$$

D. none of these

Answer: A



Watch Video Solution

354.  $\int \frac{\cos 4x + 1}{\cot x - \tan x} dx = A \cos 4x + B$  then

A.  $A = -1/2$

B.  $A = -1/8$

C.  $A = -1/4$

D. none of these

**Answer: B**



**Watch Video Solution**

355.  $\int \frac{dx}{\sin x \cos x} =$

A.  $\log|\sin x| + c$

B.  $\log|\tan x| + c$

C.  $\log|\sec x| + c$

D. none of these

**Answer: B**



**Watch Video Solution**

356. If  $\int \frac{e^x(1 + \sin x)}{1 + \cos x} dx = e^x f(x) + c$  then  $f(x) =$

A.  $\sin\left(\frac{x}{2}\right) + C$

B.  $\cos\left(\frac{x}{2}\right) + C$

C.  $\tan\left(\frac{x}{2}\right)+C$

D.  $\log\left(\frac{x}{2}\right)+C$

**Answer: C**



**Watch Video Solution**

**357.** if  $\int xe^{2x}dx = e^{2x} \cdot f(x) + c$ , where  $c$  is the constant of integration, then  $f(x)$  is

A.  $(3x-1)/4$

B.  $(2x+1)/2$

C.  $(2x-1)/4$



D.  $(x-4)/6$

**Answer: C**



**Watch Video Solution**

**358.** If  $\int \sqrt{1 + \sec x} dx = k \sin^{-1}(f(x)) + c$ , then:

A.  $\frac{1}{2}, \frac{\pi}{4}$

B.  $1, \frac{\pi}{2}$

C. 1,1

D. none of these

**Answer: A**

359.  $\int \frac{dx}{x(x^5 + 1)} =$

A.  $\frac{1}{5} \log x^5 (x^5 + 1) + c$

B.  $\frac{1}{5} \log \left( \frac{x^5 + 1}{x^5} \right) + c$

C.  $\frac{1}{5} \log \left( \frac{x^5}{x^5 + 1} \right) + c$

D. none of these

**Answer: C**

360.  $\int \frac{x + \sin x}{1 + \cos x} dx$  is equal to

A.  $x \tan x / 2 + c$

B.  $x \frac{\sin^2 x}{2} + c$

C.  $\log \cos x / 2 + c$

D. none of these

**Answer: A**



**Watch Video Solution**

361.  $\int \frac{dx}{1 + 3 \sin^2 x}$  is :

A.  $\frac{1}{3} \tan^{-1}(3 \tan^2 x)$

B.  $\frac{1}{2} \tan^{-1}(2 \tan x)$

C.  $\tan^{-1}(\tan x)$

D. none of these

**Answer: B**



**Watch Video Solution**

362.  $\int \frac{a^{\sqrt{x}}}{\sqrt{x}} dx =$

A.  $2 \frac{a^{\sqrt{x}}}{\log_e a}$

B.  $2a^{\sqrt{x}} \log_a e$

C.  $2a^{\sqrt{x}} \log_{10} a$

D.  $2a^{\sqrt{x}} \log_a 10$

**Answer: B**

 **Watch Video Solution**

363. 
$$\int \frac{1 + x + \sqrt{x + x^2}}{\sqrt{x} + \sqrt{1 + x}} dx =$$

A.  $\left(\sqrt{1 + x^2} + x\right)^n + c$

B.  $\frac{1}{n} (\text{sqrt}(1+x^2)+x)^{(n)} + c$

C.  $\frac{\left(\sqrt{1 + x^2} + x\right)^{n+1}}{n + 1} + c$

D. none of these

**Answer: B**

 [Watch Video Solution](#)

364.  $\int \frac{\sin^3 x + \cos^3 x}{\sin^2 x \cdot \cos^2 x} dx =$

A.  $\sin x - 6 \tan^{-1}(\sin x) + c$

B.  $\sin x - 2(\sin x)^{-1} + c$

C.  $\sin x - 2(\sin x)^{-1} + 6 \tan^{-1}(\sin x) + c$

D.  $\sin x - 2(\sin x)^{-1} + 5 \tan^{-1}(\sin x) + c$

**Answer: C**



Watch Video Solution

$$365. \int \frac{x+1}{x(xe^x+1)^2} dx =$$

$$A. \log \left| \frac{xe^2}{1+xe^2} \right| - \frac{1}{1+xe^x} + c$$

$$B. \log \left| \frac{1+xe^2}{xe^2} \right| - \frac{1}{1+xe^x} + c$$

$$C. \log \left| \frac{xe^2}{1+xe^2} \right| + \frac{1}{1+xe^x} + c$$

D. none of these

**Answer: C**



Watch Video Solution

366.  $\int \frac{1}{(1+x^2)\sqrt{1-x^2}} dx$  is equal to

A.  $\sqrt{\frac{x^2+1}{x^2-1}} + c$

B.  $\sqrt{\frac{x^2-1}{x^2+1}} + c$

C.  $\sqrt{x^4-1} + c$

D. none of these

**Answer: A**



**Watch Video Solution**

367.  $\int \frac{e^{2x} - 2e^x}{e^{2x} + 1} dx =$



A.  $\log(e^{2x} + 1) - \tan^{-1}e^x + c$

B.  $\frac{1}{2}\log(e^{2x} + 1) - \tan^{-1}e^x + c$

C.  $\frac{1}{2}\log(e^{2x} + 1) - 2\tan^{-1}e^x + c$

D. none of these

**Answer: C**



**Watch Video Solution**

368.  $\int \frac{\sin x \cos x}{\sqrt{1 - \sin^4 x}} dx =$

A.  $\frac{1}{2} \cos^{-1}(\sin^2 x)$

B.  $\frac{1}{2} \sin^{-1}(\sin^2 x)$

C.  $\tan^{-1}(2\sin^2x)$

D.  $\tan^{-1}(\sin^2x)$

**Answer: B**



**Watch Video Solution**

369.  $\int \frac{\sec x}{\sec x + \tan x} dx =$

A.  $\log(1+\sin x)+c$

B.  $\tan x - \sec x + c$

C.  $\log \sin x + \log \cos x = c$

D.  $\sec x + \tan x + c$

**Answer: B**



**Watch Video Solution**

**370.**  $\int f(x)dx = g(x)$ , then  $\int f(x)g(x)dx =$

A.  $\frac{1}{2}g^2(x)$

B.  $\frac{1}{2}f^2(x)$

C.  $f(x)' g(x)$

D.  $\frac{1}{2} [g'(x)]^2$

**Answer: A**



**Watch Video Solution**

371.  $\int e^{\tan^{-1}x} \left( 1 + \frac{x}{1+x^2} \right) dx$  is equal to

A.  $\frac{1}{2} e^{\tan^{-1}x} + c$

B.  $\frac{1}{2} x e^{\tan^{-1}x} + c$

C.  $x e^{\tan^{-1}x} + c$

D.  $e^{\tan^{-1}x} + c$

**Answer: C**



**Watch Video Solution**

372.  $\int \operatorname{cosec}(x - a) \operatorname{cosec} x dx =$

A.  $\frac{1}{\sin a} \log[\sin(x - a) \cdot \operatorname{cosec} x]$

B.  $\frac{1}{\sin a} \log[\sin(x - a) \cdot \sin x]$

C.  $\frac{-1}{\sin a} \log[\sin x \operatorname{cosec}(x - a)]$

D.  $\frac{-1}{\sin a} \log[\sin(x - a) \sin x]$

**Answer: A**



**Watch Video Solution**

373. If  $\int \frac{\sqrt{x}}{x(x+1)} dx = k \tan^{-1} m$ , then  $(k, m)$  is

A.  $(2, \sqrt{x})$

B.  $(1, \sqrt{x})$

C. (1,x)

D. (2,x)

**Answer: A**



**Watch Video Solution**

**374.** If  $\int f(x)\sin x \cos x dx = \frac{1}{2(b^2 - a^2)} \cdot (\log f(x)) + C$ , where

C is a constant of integration, then  $f(x) =$

A.  $\frac{2}{(b^2 - a^2)\sin 2x}$

B.  $2/(ab \sin 2x)$

C.  $\frac{2}{(b^2 - a^2)\cos 2x}$

D.  $2/(ab \cos 2x)$

**Answer: C**



**Watch Video Solution**

375.  $\int e^x \left[ \frac{\sin x + \cos x}{1 - \sin^2 x} \right] dx$  is

A.  $e^x \operatorname{cosec} x + c$

B.  $e^x \cot x + c$

C.  $e^x \sec x + c$

D.  $e^x \tan x + c$

**Answer: C**

 **Watch Video Solution**

**376.** When  $x > 0$ , then  $\int \cos^{-1} \left( \frac{1 - x^2}{1 + x^2} \right) dx$  is

A.  $2 \left[ x \tan^{-1} x - \log(1 + x^2) \right] + c$

B.  $2 \left[ x \tan^{-1} x + \log(1 + x^2) \right] + c$

C.  $2x \tan^{-1} x + \log(1 + x^2) + c$

D.  $2x \tan^{-1} x - \log(1 + x^2) + c$



Answer: D



Watch Video Solution

$$377. \int \frac{x^2 + 1}{x^4 + 1} dx =$$

A.  $\frac{1}{\sqrt{2}} \log_e(x^2 + 1) + c$

B.  $\frac{1}{\sqrt{2}} \tan^{-1} \left( \frac{x^2 + 1}{x\sqrt{2}} \right) + c$

C.  $\frac{1}{\sqrt{2}} \tan^{-1} \left( (x^2 - 1) \right) + c$

D.  $\frac{1}{\sqrt{2}} \tan^{-1} \left( \frac{x^2 - 1}{x\sqrt{2}} \right) + c$

Answer: D



Watch Video Solution



Watch Video Solution

378.  $\int e^x \left[ \frac{1 + \sin x \cos x}{\cos^2 x} \right] dx$

A.  $e^x \cos x + c$

B.  $e^x \sec x \tan x + c$

C.  $e^x \tan x + c$

D.  $e^x \cos^2 x + c$

**Answer: C**



Watch Video Solution

$$379. \int \frac{10^{\frac{\pi}{2}} dx}{\sqrt{10^{-x} - 10^x}} =$$

A.  $\frac{1}{\log_e 10} \sin^{-1}(10^x) + c$

B.  $2\sqrt{(10)^{-x} + 10^x} + c$

C.  $\frac{1}{\log_e 10} \sinh^{-1}(10^x) + c$

D.  $\frac{-1}{\log_e 10} \sinh^{-1}(10^x) + c$

**Answer: A**



**Watch Video Solution**

$$380. \int e^{\log(\tan x)} dx =$$

A.  $e^{\tan x} + c$

B.  $\tan x + c$

C.  $\log \sec x + c$

D.  $\log \tan x + c$

**Answer: C**



**Watch Video Solution**

381.  $\int \frac{e^{\tan^{-1}x}}{1+x^2} dx.$

A.  $e^x \frac{(1-x)}{1+x^2} + c$

B.  $\frac{e^x}{(1+x^2)} + c$

$$C. \frac{e^x}{1+x} + c$$

$$D. \frac{e^x}{1+x^2} + c$$

**Answer: D**



**Watch Video Solution**

$$382. \int e^x \left( \frac{1 + \sin x}{1 + \cos x} \right) dx =$$

$$A. e^x \left( \frac{1 + \sin x}{1 - \cos x} \right) + c$$

$$B. -e^x \cot \left( \frac{x}{2} \right) + c$$

$$C. e^{(x)} \tan(x/2) + c`$$

$$D. e^x \tan x + c$$

Answer: C



Watch Video Solution

383.  $\int \frac{dx}{\cos x + \sqrt{3}\sin x}$  equals

A.  $\log \tan \left( \frac{x}{2} + \frac{\pi}{12} \right) + c$

B.  $\log \tan \left( \frac{x}{2} - \frac{\pi}{12} \right) + c$

C.  $\frac{1}{2} \log \tan \left( \frac{x}{2} + \frac{\pi}{12} \right) + c$

D.  $\frac{1}{2} \log \tan \left( \frac{x}{2} - \frac{\pi}{12} \right) + c$

Answer: C



View Text Solution

$$384. \int \left( \frac{\sin x + 8\cos x}{4\sin x + 6\cos x} \right) dx =$$

A.  $x + \frac{1}{2} \log(4\sin x + 6\cos x) + c$

B.  $2x + \log(2\sin x + 3\cos x) + c$

C.  $x + \frac{1}{2} \log(2\sin x + 3\cos x) + c$

D.  $\frac{1}{2} \log(4\sin x + 6\cos x) + c$

**Answer: A**



**Watch Video Solution**

385. If  $\int e^x \left( \frac{1 - \sin x}{1 - \cos x} \right) dx = f(x) + c$  then  $f(x) =$

A.  $e^x \cot\left(\frac{x}{2}\right) + c$

B.  $e^{-x} \cot\left(\frac{x}{2}\right) + c$

C.  $-e^x \cot\left(\frac{x}{2}\right) + c$

D.  $-e^{-x} \cot\left(\frac{x}{2}\right) + c$

**Answer: C**



**Watch Video Solution**

386.  $\int (\sqrt{\tan x} + \sqrt{\cot x}) dx$  is equal to



A.  $\sin^{-1}(\sin x - \cos x) + c$

B.  $\sqrt{2}\sin^{-1}(\sin x - \cos x) + c$

C.  $\sqrt{2}\cos^{-1}(\sin x - \cos x) + c$

D. none of these

**Answer: B**



**Watch Video Solution**

**387.**  $\int 7^{7^{7^x}} \cdot 7^{7^x} \cdot 7^x dx$  equals :

A.  $\frac{7^{7^{7^x}}}{(\log_e 7)^3} + c$

B.  $\frac{7^{7^{7^x}}}{(\log_e 7)^2} + c$

C.  $7^{7^7 \wedge x} \cdot (\log_e 7)^3$

D. none of these

**Answer: A**



**Watch Video Solution**

388.  $\int \frac{dx}{1 + 3\sin^2 x}$  is :

A.  $\frac{1}{3} \tan^{-1}(3 \tan^2 x) + c$

B.  $\frac{1}{2} \tan^{-1}(2 \tan^2 x) + c$

C.  $\tan^{-1}(\tan x) + c$

D. none of these

**Answer: B**



**Watch Video Solution**

**389.** If  $\int f(x)dx = f(x)$ , then  $\int \{f(x)\}^2 dx =$

A.  $\frac{1}{2}(f(x))^2 + c$

B.  $[f(x)]^3$

C.  $\frac{[f(x)]^3}{3}$

D.  $[f(x)]^2$

**Answer: A**



**Watch Video Solution**

390. If  $\frac{1 + \cos 4x}{\cot x - \tan x} dx = A \cos 4x + B$ , then the values of A

and B are

A.  $A = \frac{1}{8}, B \in R$

B.  $A = -\frac{1}{8}, B \in R$

C.  $A = \frac{1}{4}, B \in R$

D. none of these

**Answer: B**



[View Text Solution](#)

391.  $I = \frac{1}{x^4 \sqrt{a^2 + x^2}} dx$  then  $I =$

$$\text{A. } \frac{1}{a^4} \left\{ \frac{1}{x} \sqrt{a^2 + x^2} - \frac{1}{3x^3} \sqrt{a^2 + x^2} \right\} + c$$

$$\text{B. } \frac{1}{a^4} \left\{ \frac{1}{x} \sqrt{a^2 + x^2} - \frac{1}{3x^3} (a^2 + x^2)^{\frac{3}{2}} \right\} + c$$

$$\text{C. } \frac{1}{a^4} \left\{ \frac{1}{x} \sqrt{a^2 + x^2} - \frac{1}{\sqrt{x}} (a^2 + x^2)^{\frac{3}{2}} \right\} + c$$

D. none of these

**Answer: B**



**View Text Solution**

$$392. \int \frac{(\tan^{-1}x)^3}{1+x^2} dx \text{ is equal to}$$

A.  $3(\tan^{-1}x)^2 + c$

B.  $\frac{(\tan^{-1}x)^4}{4} + c$

C.  $(\tan^{-1}x)^4 + c$

D. none of these

**Answer: B**



**Watch Video Solution**

393.  $\int \frac{1}{x^2(x^4 + 1)^{3/4}} dx$  is equal to \_\_\_\_\_.

A.  $\left(1 + \frac{1}{x^4}\right)^{\frac{1}{4}}$

B.  $-\left(1 + \frac{1}{x^4}\right)^{\frac{1}{4}}$

C.  $-\frac{1}{4}\left(1 + \frac{1}{x^4}\right)^{\frac{1}{4}}$

D. none of these

**Answer: B**



**Watch Video Solution**

**394.** The value of  $\int \frac{\sin x + \cos x}{3 + \sin 2x} dx$  is

A.  $\frac{1}{4} \left( \log \left( \frac{2 + \sin x - \cos x}{2 - \sin x + \cos x} \right) \right)$

B.  $\frac{1}{2} \log \left( \frac{2 + \sin x}{2 - \sin x} \right)$

$$C. \frac{1}{4} \log \left( \frac{1 + \sin x}{1} - \sin x \right)$$

D. none of these

**Answer: A**

 **Watch Video Solution**

**395.** The value of  $\int \frac{1}{x + \sqrt{x-1}} dx =$

A.  $\log \left( x + \sqrt{x-1} + \sin^{-1} \left( \sqrt{\frac{x-1}{x}} \right) + c \right)$

B.  $\log \left( x + \sqrt{x-1} + c \right)$

C.  $\log \left( x + \sqrt{x-1} - \left( \frac{2}{\sqrt{3}} \right) \tan^{-1} \left( \frac{2\sqrt{x-1} + 1}{\sqrt{3}} \right) + c \right)$



D. none of these

**Answer: C**

 [Watch Video Solution](#)

396.  $\int \frac{1}{x(x^7 + 1)} dx$  is equal to

A.  $\log\left(\frac{x^7}{x^7 + 1}\right) + c$

B.  $\frac{1}{7}\log\left(\frac{x^7}{x^7 + 1}\right) + c$

C.  $\log\left(\frac{x^7 + 1}{x^7}\right) + c$

$$D. \frac{1}{7} \log \left( \frac{x^7 + 1}{x^7} \right) + c$$

**Answer: B**



**Watch Video Solution**

$$397. \int \frac{dx}{\left[ (x-1)^3 (x+2)^5 \right]^{\frac{1}{4}}}$$

$$A. \frac{4}{3} \left( \frac{x-1}{x+2} \right)^{\frac{1}{4}} + c$$

$$B. \frac{4}{3} \left( \frac{x+2}{x-1} \right)^{\frac{1}{4}} + c$$

$$C. \frac{1}{3} \left( \frac{x-1}{x+2} \right)^{\frac{1}{4}} + c$$

$$D. \frac{1}{3} \left( \frac{x+2}{x-1} \right)^{\frac{1}{4}} + c$$

**Answer: A**



**Watch Video Solution**

$$398. \int \frac{dx}{x^2 + 4x + 13} =$$

A.  $\log(x^2 + 4x + 13) + c$

B.  $\frac{1}{3} \tan^{-1}\left(\frac{x+2}{3}\right) + c$

C.  $\log(2x+4)+c$

D.  $\frac{2x+4}{x^2+4x+13} + c$

**Answer: B**



**Watch Video Solution**

399. If  $\int \frac{e^x - 1}{e^x + 1} dx = f(x) + c$  then  $f(x) =$

A.  $2\log(e^x + 1)$

B.  $\log(e^{2x} - 1)$

C.  $2\log(e^x + 1) - x$

D.  $\log(e^{2x} + 1)$

**Answer: C**



**Watch Video Solution**

400. If  $\int \frac{1}{x + x^5} dx = f(x) + c$ , then the value of  $\int \frac{x^4}{x + x^5} dx$

is

A.  $\log x - f(x) + c$

B.  $f(x) + \log x + c$

C.  $f(x) - \log x + c$

D. none of these

**Answer: A**



**Watch Video Solution**

401.  $\int \left[ \sin(\log_e x) + \cos(\log_e x) \right] dx =$

A.  $\sin(\log_e x) + \cos(\log_e x) + c$

B.  $x\sin(\log_e x) + c$

C.  $x\cos(\log_e x) + c$

D. none of these

**Answer: B**



**Watch Video Solution**

**402.** If  $\int e^x(1+x)\sec^2(xe^x)dx = f(x) + c$  then  $f(x)$  equal to

A.  $\cos(xe^x)$

B.  $\sin(xe^x)$

C.  $2\tan^{-1}x$

D.  $\tan(xe^x)$

**Answer: D**



**Watch Video Solution**

403. If  $f\left(\frac{3x-4}{3x+4}\right) = x+2$ , then  $\int f(x)dx =$

A.  $e^{x+2}\log_e((3x-4)(3x+4))$

B.  $-\frac{8}{3}\log_e(1-x) + \frac{2}{3}x + c$

C.  $\frac{8}{3}\log_e(x-1) + \frac{x}{3} + c$

D. none of these

**Answer: B**



**Watch Video Solution**

**404.**  $\int_0^{\pi} [\cot x] dx$ , when  $[\cdot]$  denotes the greatest integer function, is equal to :

A.  $-\frac{\pi}{2}$

B.  $\frac{\pi}{2}$

C. 1

D. minus 1

**Answer: A**



**Watch Video Solution**



