MATHS

BOOKS - BETTER CHOICE PUBLICATION

INTEGRALS

Solved Examples Section I

1. anti derivative of $2e^{2x}$ is equal to :

A. $2e^{2x}$

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

C. 0

D. None of these

Answer: B

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2. $\int \frac{dx}{\sin^2 x \cos^2 x}$ equals :

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

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3. $\int \sqrt{x} dx$ equal to

A. $x^{3/2}$

B. $x^{2/3} + c$

C. $\frac{2x^{3/2}}{3}$

D. $\frac{2x^{3/2}}{3} + C$

Answer: D

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4. $\int \frac{1}{2x+3} dx$ is equal to :

A. $\log(2x+3) + C$

B. $2\log|2x+3| + C$

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

D. None of these

Answer: C

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5. $\int \frac{dx}{x^2+2x+2}$ equals :

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

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

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

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

Answer: B

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6. Choose the correct answer: $\int\sqrt{1+x^2}dx$ is equal to:

A. $\frac{x\sqrt{1+x^2}}{2}+\frac{1}{2}\log\left|x\sqrt{1+2}\right|+C$

B. $\frac{2}{3}\left(1+x^2\right)^{3/2}+C$

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

D. $\frac{x^2\sqrt{1+x^2}}{2}+\frac{1}{2}x^2\log\left|x+\sqrt{1+12}\right|+C$

Answer: A

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7. $\int_0^1 \frac{1}{\sqrt{1-x^2}} dx$ is equal to :

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

B. $\frac{\pi}{3}$

C. $\frac{\pi}{2}$

D. $\frac{\pi}{6}$

Answer: C

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8. $\int_1^{\sqrt{3}} \frac{dx}{1+x^2}$ equals :

A. $\frac{\pi}{3}$

B. $\frac{2\pi}{3}$

C. $\frac{\pi}{6}$

D. $\frac{\pi}{12}$

Answer: D

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9. The value of $\int_0^{\pi/2} \log\left(\frac{4+3\sin x}{4+3\cos x}\right) dx$ is

A. 2

B. $\frac{3}{4}$

C. 0

D. -2

Answer: C

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Solved Examples Section Ii

1. Evaluate $\int \frac{x^3 + 3x + 4}{\sqrt{x}} dx$

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2. Evaluate: $\int \frac{\sqrt{x} - 1}{\sqrt{x}^2} dx$

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3. Evaluate $\int \frac{2 - 3\sin x}{\cos^2 x} dx$

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4. Evaluate $\int \frac{1}{1-\sin x} dx$

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5. integrate $\int \frac{\cos 2x - \cos 2\alpha}{\cos x - \cos \alpha} dx$

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6. Evaluate $\int \frac{dx}{\sqrt{x+1} + \sqrt{x+2}}$

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7. Evaluate: $\int \sin 4x \sin 3x dx$

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8. Evaluate: $\int \sin^3 x dx$:

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9. Evaluate $\int \sin^4 x$ dx.

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Solved Examples Section Iii

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

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

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3. Evaluate $\int \frac{\sin 3x}{\sin 5x \sin 2x} dx$

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4. Integrate $\int (2x+1)\sqrt{x^2+x+1}$

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5. Evaluate $\int \frac{\sin x}{1+\cos x} dx$

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6. Evaluate $\int \frac{(1+\log x)^2}{x} dx$

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7. Evaluate $\int \frac{1}{\sin x \cos^3 x} dx$

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8. Integrate $\int \frac{x^3 \sin\left(\tan^{-1} x^4\right)}{1+x^8} dx$

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9. Evaluate , $\int \sin^3 x \cos^3 x \, dx$

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10. Evaluate $\int \tan^3 2x \sec 2x dx$

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11. Evaluate , $\int \frac{\sin^3 x}{\cos x} \, dx.$

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Solved Examples Section Iv

1. Evaluate $\int \frac{1}{\sqrt{1+4x^2}} dx$

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

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3. Integrate $\int \frac{x-1}{\sqrt{x^2-1}} dx$

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4. Evaluate $\int \frac{x^2}{\sqrt{x^6 + a^6}} dx$

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5. Evaluate : $\int \frac{\sin x}{\sin(x - a)} dx.$

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6. Evaluate $\int \frac{dx}{e^x + 4e^{-x}}$

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

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8. Find $\int \sqrt{\sec x - 1} dx$

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9. Find $\int \frac{1}{4\sin^2 x + 5\cos^2 x} \text{dx}$

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10. Evaluate $\int \frac{dx}{\sqrt{3}\sin x + \cos x}$

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

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Solved Examples Section V

1. Evaluate $\int \frac{1}{9x^2 + 6x + 5} dx$

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

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

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4. Evaluate $\int \frac{dx}{\sqrt{7-6x-x^2}}$

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5. Evaluate $\int \frac{1}{\sqrt{x^2-4x+5}}$ dx.

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6. Evaluate $\int \frac{x+2}{\sqrt{4x-x^2}} dx$

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7. Evaluate $\int \frac{x^3 + 5x^2 - 4}{x^2} dx$

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8. Evaluate $\int \sqrt{1 - 4x^2} dx$

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9. Find: $\int \sqrt{x^2 + 2x + 5} dx$

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10. Evaluate $\int x\sqrt{x+x^2}dx$

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11. Evaluae $\int \frac{e^x}{\sqrt{5-4e^x-e^{2x}}}dx$

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Solved Examples Section Vi

1. Evaluate $\int x^2 e^x dx.$

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2. Evaluate $\int x \log 2x dx.$

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3. Evaluate $\int x \sin^{-1} x dx.$

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4. Evaluate $\int x \tan^{-1} x dx$

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5. Evaluate $\int x^2 \cos^{-1} x dx$

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6. Evaluate $\int \left(\sin^{-1} x\right)^2 dx$

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7. Evaluate $\int \frac{x \cos^{-1} x}{\sqrt{1-x^2}} dx$

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8. Evaluate $\int \tan^{-1} x dx.$

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Solved Examples Section Vii

1. Evaluate $\int e^x \sin x dx$

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2. Evaluate $\int e^x \cos 3x dx$

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3. Evaluate $\int e^x \left(\frac{1}{x} - \frac{1}{x^2} \right) dx.$

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4. Evaluate $\int e^x \left(\frac{1 + \sin x}{1 + \cos x} \right) dx$

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

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

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7. Evaluate $\int \frac{x-3}{(x-1)^3} e^x dx$

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8. Evaluate $\int \sec^3 x dx.$

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9. Evaluate $\int \left(2x^2 + e^x\right) dx$

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Solved Examples Section Viii

1. Evaluate $\int \frac{x}{(x+1)(x+2)} dx$

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2. Evaluate $\int \frac{2x+3}{x^2+3x+2}dx$

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3. Evaluate $\int \frac{3x-1}{(x-1)(x-2)(x-3)}dx.$

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4. Evaluate $\int \frac{1}{x-x^3}dx$

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5. Evaluate $\int \frac{1-x^2}{x(1-2x)}dx$

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

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7. Evaluate $\int (ax^2+bx+c)dx$

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8. Evalualte : $\int \frac{2x}{(x^2+1)(x^2+3)} dx.$

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

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10. Evaluate $\int \frac{1}{x(x^n+1)} dx$

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11. Evaluate $\int \frac{3x-1}{(x-1)(x-2)(x-3)}dx$

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12. Evaluate $\int \frac{x}{(x-1)(x+2)}dx$

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13. Evaluate $\int \frac{x}{(x+1)(x+2)}dx$

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14. Evaluate $\int \frac{2}{(1+x)(1+x^2)} dx$

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15. Evaluate $\int \frac{x^2-1}{x^4+1} dx$

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16. Evaluate $\int \frac{2x}{x^2+3x+2} dx$

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17. Evaluate $\int \frac{dx}{4+5\sin x}$

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18. Evaluate $\int \frac{dx}{1+\sin x+\cos x}$

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

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20. Evaluate $\int \frac{dx}{(x)(x^4-1)}$

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21. Evaluate $\int \frac{1}{x\sqrt{ax-x^2}} dx$

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22. Evaluate $\int_{-1}^{1} (x+1)(dx)$

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Solved Examples Section X

1. Evaluate $\int_0^2 \frac{6x+3}{x^2+4}dx$

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2. Evaluate $\int_0^2 \frac{6x+3}{x^2+4}dx$

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3. Evaluate $\int_0^1 \frac{dx}{\sqrt{1-x^2}}$

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4. Evaluate $\int_0^{\frac{\pi}{2}} \frac{\cos x}{(2+\sin x)(3+\sin x)} dx$

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Solved Examples Section Xi

1. Evaluate $\int_0^{\frac{\pi}{2}} \frac{\sqrt{\sin x}}{\sqrt{\sin x}+\sqrt{\cos x}}dx$

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2. Evaluate $\int_{\frac{\pi}{3}}^{\frac{\pi}{6}} \frac{dx}{1+\sqrt{\tan x}}$

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3. Evaluate $\int_{-1}^{1} \log\left(\frac{2+x}{2-x}\right)dx$

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4. Evaluate $\int_{-1}^{1} x^{17} \cos^4 x dx$

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5. Evaluate : $\int_{-5}^{5} |x+2| dx.$

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6. Evaluate $\int_{4}^{5} e^x dx$

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7. Evaluate : $\int_0^{\frac{\pi}{4}} \log(1+\tan x)dx$, using properties of definite integrals.

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8. Evaluate $\int_0^{\pi} \frac{x \sin x}{1+\sin x}dx$

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9. Evaluate the definite integral:

$$\int_0^{\pi} \frac{x \tan x}{\sec x + \tan x} dx$$

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10. Evaluate : $\int_0^{\frac{\pi}{2}} \log \sin x dx.$

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11. Evaluate $\int_0^{\pi} \log(1 + \cos x) dx$

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Solved Examples Section Xii

1. Evalualte : $\int \frac{2x}{x^3 - 1} dx.$

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Solved Examples

1. Evaluate $\int_1^{\sqrt{3}} \frac{dx}{1 + x^2}$

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2. Evaluate $\int_0^{\frac{\pi}{4}} (\sin 2x)\,dx$

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3. Evaluate $\int \sqrt{4 - x^2}\,dx$

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4. Evaluate $\int \left(x^2 + 4x + 6\right)dx$

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5. Evaluate $\int (x \sin 3x) dx$

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Assignment Section I Most Important Questions For Practice

1. The antiderivative of $\left(\sqrt{x} + \frac{1}{x}\right)$ equals

A. $\frac{1}{3}x^{\frac{1}{3}} + 2x^{\frac{1}{2}} + C$

B. $\frac{2}{3}x^{\frac{2}{3}} + \frac{1}{2}x^2 + C$

C. $\frac{2}{3}x^{\frac{3}{2}} + \log|x| + C$

D. $\frac{3}{2}x^{\frac{3}{2}} + \frac{1}{2}x^{\frac{1}{2}} + C$

Answer: C

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

A. $-\cot(xe^x) + C$

B. $\tan(xe^x) + C$

C. $\tan(e^x) + C$

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

Answer: B

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3. $\int \frac{dx}{x(x^2+1)}$ equals :

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

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

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

D. $\log|x| + \log\left(x^2 + 1\right) + C$

Answer: A

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4. $\int x^2 e^{x^3} dx$ equals :

A. $\frac{1}{3}e^{x^3} + C$

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

C. $\frac{1}{2}e^{x^3} + C$

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

Answer: A

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5. Choose the correct answer:

$\int e^x \sec x(1+\tan x)dx$ equals :

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

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6. $\int \tan x \sec^2 x dx$ equals

A. $\frac{\tan^2 x}{2} + C$

B. $\frac{\sec^2 + x}{2}$

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

D. None of these

Answer: A

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7. $\int \sqrt{4-x^2}dx$ equals

A. $\frac{x\sqrt{1-4x^2}}{2}+\frac{1}{2}\sin^{-1}2x$

B. $\frac{x\sqrt{4-x^2}}{2}+\frac{1}{2}\sin^{-1}2x$

C. $\frac{x\sqrt{4-x^2}}{2}+2\sin^{-1}\frac{x}{2}$

D. $\frac{x\sqrt{4-x^2}}{2}+2\log\left|x+\sqrt{4-x^2}\right|$

Answer: C

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8. $\int x \sec^2(x^2+1)\,dx$ equals

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

B. $\frac{1}{3}\sec^3(x^2+1)$

C. $x^2\tan(x^2+1)$

D. None of these

Answer: A

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9. The value of $\int_0^{\pi/4} \tan x dx$

A. 1

B. $\frac{1}{\sqrt{2}}$

C. $\frac{1}{2}$

D. $\frac{1}{2}\log 2$

Answer: D

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10. Evaluate $\int_0^1 \frac{1}{x^2+1} dx$

A. $\frac{\pi}{3}$

B. $\frac{\pi}{2}$

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

D. π

Answer: C

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11. The value of $\int_{-\pi/4}^{\pi/4} \tan^5 x dx$ is

A. $\frac{1}{6}$

B. 5

C. 0

D. 10

Answer: C

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12. If $f(x) = \int_0^x t \sin t dt$, then $f'(x)$ is :

A. $\cos x + x \sin x$

B. $x \sin x$

C. $x \cos x$

D. $\sin x + x \cos x$

Answer: B

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Assignment Section Ii Most Important Questions For Practice

1. Evaluate the following integrals :

$$\int (1-x)\sqrt{x}dx$$

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2. Evaluate the following integrals :

$$\int \frac{x^2-1}{x^3}dx$$

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3. Evaluate the following integrals :

$$\int x^3\left(1-\frac{1}{x^3}\right)dx$$

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4. Evaluate the following integrals :

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

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5. Find the following integral : $\int \frac{\sec^2(x)}{\cos ec^2(x)}dx$

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6. Find the following integral :

$$\int \sec x(\sec x + \tan x)dx$$

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7. Find the following integrals: $\int \frac{1 - \sin x}{\cos^2 x} dx$

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8. Evaluate the following integrals :

$$\int \frac{1}{1+\cos x} dx$$

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9. Evaluate the following integrals :

$$\int \frac{1}{1-\cos x} dx$$

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10. Evaluate the following integrals :

$$\int \frac{1+\sin x}{1-\sin x} dx$$

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11. Evaluate the following integrals :

$$\int \frac{2\cos x}{3\sin^2 x} dx$$

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12. Evaluate the following integrals :

$$\int \frac{\sin^6 x + \cos^6 x}{\sin^2 x \cos^2 x} dx$$

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13. Evaluate the following integrals :

$$\int \frac{e^{5\log e^x} - e^{4\log e^x}}{e^{3\log e^x} - e^{2\log e^x}} dx$$

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14. Find the following integerals :

$$\int \sec^2(7-4x)dx$$

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15. Find the following integerals :

$$\int (ax+b)^3 dx$$

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16. Find the following integerals :

$$\int \frac{1}{\sqrt{5+x}+\sqrt{x}}dx$$

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17. Find the following integerals :

$$\int \frac{x+3}{x^2+4x+3}dx$$

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18. Find the following integerals :

$$\int \frac{x^3 + 3x^2 + 2x + 1}{x} dx$$

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19. Find the following integerals :

$$\int \sin 3x \cos 4x dx$$

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20. Find the following integerals :

$$\int \cos x \cos 7x dx$$

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21. Find the following integerals :

$$\int \cos 2x \cos 4x \cos 6x dx$$

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22. Find the following integerals :

$$\int \sin x \sin 2x \sin 3x dx$$

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23. Find the following integerals :

$$\int \cos 4x \sin 4x dx$$

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24. Find the following integerals : $\int \sin^4 2x dx$

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25. Find the following integerals : $\int \cos^3 x dx$

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26. Find the following integerals : $\int \sin^3(2x+1)dx$

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27. Find the following integerals :

$$\int \frac{1-\cos x}{1+\cos x} dx$$

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28. Find the following integerals :

$$\int x\sqrt{3x-2} dx$$

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Assignment Section Iii Most Important Questions For Practice

1. Evaluate the following integrals :

$$\int \frac{x^2}{1+x^3} dx$$

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2. Evaluate the following integrals :

$$\int \frac{3x^2+1}{x(x^2+1)} dx$$

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3. Integrate the function: $\frac{e^{2x}-e^{-2x}}{e^{2x}+e^{-2x}}$

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4. Evaluate the following integrals :

$$\int \frac{1-\cot x}{1+\cot x} dx$$

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5. Evaluate the following integrals :

$$\int \frac{2\cos x - 3\sin x}{6\cos x + 4\sin x}$$

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6. Evaluate the following integrals :

$$\int\left(\frac{x+\cos 6x}{3x^2+\sin 6x}\right)dx$$

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7. Evaluate the following integrals :

$$\int\frac{1}{1-\cot x}dx$$

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8. Evaluate the following integrals :

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

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9. Evaluate the following integrals :

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

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10. Evaluate the following integrals :

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

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11. Evaluate the following integrals :

$$\int x\sqrt{x^2-1} dx$$

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12. Evaluate the following integrals :

$$\int x\sqrt{1+2x^2}dx$$

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13. Evaluate the following integrals :

$$\int \frac{x\sin^{-1}x}{\sqrt{1-x^2}}\,dx$$

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14. Evaluate the following integrals :

$$\int \frac{\cos x - \sin x}{1 + \sin 2x}$$

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15. Evaluate the following integrals :

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

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16. Evaluate the following integrals :

$$\int \frac{1}{\cos^2 x(1-\tan x)^2} dx$$

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17. Evaluate the following integrals :

$$\int \frac{(\log x)^2}{x} dx$$

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18. Evaluate the following integrals :

$$\int \frac{(x+1)(x+\log x)^2}{x} dx$$

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19. Evaluate the following integrals :

$$\int x^3 \sin(x^4) dx$$

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20. Evaluate the following integrals :

$$\int e^x \operatorname{cosec}^2(e^x)\,dx$$

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21. Evaluate the following integrals :

$$\int x^2 e^{x^3} \cos\left(e^{x^3}\right) dx$$

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22. Evaluate the following integrals :

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

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23. Evaluate the following integrals :

$$\int \frac{\sin \sqrt{x}}{\sqrt{x}} dx$$

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24. Evaluate the following integrals :

$$\int \frac{\sec^2 \sqrt{x}}{\sqrt{x}} dx$$

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25. Evaluate the following integrals :

$$\int \frac{e^{m \tan^{-1} x}}{1 + x^2}$$

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26. Evaluate the following integrals :

$$\int \frac{x \sin^{-1} x}{\sqrt{1-x^2}}\, dx$$

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27. Evaluate the following integrals :

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

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28. Evaluate the following integrals :

$$\int \frac{\sin\left(2\tan^{-1}x\right)}{1+x^2}dx$$

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29. Evaluate the following integrals :

$$\int \frac{\sec^2\left(2\tan^{-1}x\right)}{1+x^2}dx$$

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30. Evaluate the following integrals :

$$\int x\left(\frac{\sin x^2 e^{\sec x^2}}{\cos^2 x^2}\right) dx$$

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31. Evaluate the following integrals :

$$\int \frac{x^2}{\sin^2 x^3} dx$$

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32. Evaluate the following integrals :

$$\int \frac{\tan^4 \sqrt{x} \sec^2 \sqrt{x}}{\sqrt{x}} dx$$

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33. Evaluate the following integrals :

$$\int \cos 6x \sqrt{1 + \sin 6x} dx$$

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34. Evaluate the following integrals :

$$\int 2x.\sec^2\left(x^2+3\right)\tan^2\left(x^2+3\right)dx$$

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35. Evaluate the following integrals :

$$\int \cos(3x)e^{\log\sin 3x}dx$$

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36. Evaluate the following integrals :

$$\int \sec^4 x dx$$

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37. Evaluate the following integrals :

$$\int \cos ec^4 x dx$$

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38. Evaluate the following integrals :

$$\int \tan^4 x dx$$

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39. Evaluate the following integrals :

$$\int \cos^3 x \sin^4 dx$$

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Assignment Section Iv Most Important Questions For Practice

1. Evaluate the following integrals :

$$\int \cos^3 x e^{\log \sin x} dx$$

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2. Integrate the following functions :

$$\int \frac{1}{\sqrt{9+x^2}} dx$$

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3. Integrate the following functions :

$$\int \frac{dx}{\sqrt{9-25x^2}}$$

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4. Integrate the following functions :

$$\int \frac{dx}{\sqrt{(2-x)^2+1}}$$

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5. Evaluate : $\int \frac{x-1}{\sqrt{x^2+1}} dx.$

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6. Integrate the functions: $\frac{3x^2}{x^6+1}$

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7. Integrate the functions: $3\frac{x}{1+2x^4}$

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8. Integrate the function: $\frac{\cos x}{\sqrt{4-\sin^2 x}}$

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9. Find the following integral: $\int \frac{\sin x}{\sin(x+a)} dx$

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10. Integrate the following functions :

$\int \frac{\sin(x-\alpha)}{\sin(x+\alpha)} dx$

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11. Integrate the following functions :

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

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12. Integrate the following functions :

$$\int \frac{e^x}{e^{2x}+1} dx$$

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13. Integrate the following functions :

$$\int \frac{dx}{\sqrt{1-e^{2x}}} dx$$

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14. Evaluate $\int \sqrt{\frac{1-x}{1+x}}$ dx.

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15. Integrate the following functions :

$$\int \sqrt{\frac{3+x}{3-x}} dx$$

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16. Integrate the following functions :

$$\int \sqrt{\frac{a-x}{a+x}} dx$$

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17. Integrate the following functions :

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

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18. Integrate the following functions :

$$\int \frac{dx}{3\sin^2 x + 4\cos^2 x}$$

Watch Video Solution

19. Integrate the following functions :

$$\int \frac{dx}{2 + \sin^2 x}$$

Watch Video Solution

20. Integrate the following functions :

$$\int \frac{1}{5\cos x - 12\sin x} dx$$

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21. Integrate the following functions :

$$\int \frac{1}{3\cos x + 4\sin x} dx$$

Watch Video Solution

22. Integrate the following functions :

$$\int \frac{1}{\sin(x-a)\sin(x-b)}dx$$

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23. Integrate the following functions :

$$\int \left(2x^2 - 3\sin x + 5\sqrt{x}\right)dx$$

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Assignment Section V Most Important Questions For Practice

1. Evaluate the following integrals:

$$\int \frac{dx}{x^2 + 6x + 11}$$

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2. Evaluate the following integrals:

$$\int \sec x(\sec x + \tan x)dx$$

Watch Video Solution

3. Evaluate the following integrals:

$$\int \frac{\left(\sec^2 x\right) dx}{\operatorname{cosec}^2 x}$$

Watch Video Solution

4. Evaluate the following integrals:

$$\int \sqrt{1 + \frac{x^2}{4}}\, dx$$

Watch Video Solution

5. Evaluate the following integrals:

$$\int (x \log 2x) dx$$

Watch Video Solution

6. Evaluate the following integrals:

$$\int \frac{x^2}{x^2 + 3x + 3} dx$$

Watch Video Solution

7. Evaluate the following integrals:

$$\int \frac{dx}{\sqrt{(x-1)(x-2)}}$$

Watch Video Solution

8. Evaluate the following integrals:

$$\int \frac{dx}{\sqrt{x^2-3x+2}}$$

Watch Video Solution

9. Evaluate the following integrals:

$$\int \frac{3x^2 dx}{x^6 + 1}$$

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10. Evaluate the following integrals:

$$\int \frac{dx}{\sqrt{4 + 2x - x^2}}$$

Watch Video Solution

11. Evaluate the following integrals:

$$\int \frac{dx}{\sqrt{2+7x-3x^2}}$$

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12. Evaluate the following integrals:

$$\int \frac{dx}{\sqrt{10-8x-2x^2}}$$

Watch Video Solution

13. Evaluate the following integrals:

$$\int \frac{dx}{\sqrt{x}\sqrt{5-x}}$$

Watch Video Solution

14. Evaluate the following integrals:

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

Watch Video Solution

15. Evaluate the following integrals:

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

Watch Video Solution

16. Evaluate the following integrals:

$$\int \frac{\cos x}{\sqrt{\sin^2 x - 2\sin x - 3}} dx$$

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17. Evaluate the following integrals:

$$\int \frac{x+2}{\sqrt{(x-2)(x-3)}}dx$$

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18. Evaluate the following integrals:

$$\int \frac{5x+3}{\sqrt{x^2+4x+10}}dx$$

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19. Evaluate the following integrals:

$$\int \frac{3x+5}{\sqrt{x^2-8x+7}}$$

Watch Video Solution

20. Evaluate the following integrals:

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

Watch Video Solution

21. Evaluate the following integrals:

$$\int \frac{x+3}{\sqrt{5-4x-x^2}}dx$$

Watch Video Solution

22. Evaluate the following integrals:

$$\int \frac{2x+5}{\sqrt{7-6x-x^2}}dx$$

Watch Video Solution

23. Evaluate the following integrals:

$$\int \sqrt{4 - x^2}\, dx$$

Watch Video Solution

24. Evaluate the following integrals:

$$\int \sqrt{1 + \frac{x^2}{9}}\, dx$$

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25. Evaluate the following integrals:

$$\int \sqrt{x^2 + 3x} dx$$

Watch Video Solution

26. Evaluate the following integrals:

$$\int \sqrt{x^2 + 4x + 6} dx$$

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27. Evaluate the following integrals:

$$\int \sqrt{x^2 + 4x + 1} dx$$

Watch Video Solution

28. Evaluate the following integrals:

$$\int \sqrt{x^2 + 4x - 5} dx$$

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29. Evaluate the following integrals:

$$\int \sqrt{1 - 4x - x^2}\, dx$$

Watch Video Solution

30. Evaluate the following integrals:

$$\int \sqrt{3 - 2x - x^2}\, dx$$

Watch Video Solution

31. Evaluate the following integrals:

$$\int (x-1)\sqrt{x^2+x+1}dx$$

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32. Evaluate the following integrals:

$$\int (x-3)\sqrt{x^2+3x-18}dx$$

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33. Evaluate the following integrals:

$$\int (x+3)\sqrt{3-4x-x^2}\,dx$$

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Assignment Section Vi Most Important Questions For Practice

1. Evaluate the following integrals:

$$\int x e^x\,dx$$

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2. Evaluate the following integrals:

$$\int x^2 e^{3x} dx$$

Watch Video Solution

3. Evaluate the following integrals:

$$\int x^3 \log x dx$$

Watch Video Solution

4. Evaluate the following integrals:

$$\int (\log x)(2)\,dx$$

Watch Video Solution

5. Evaluate the following integrals:

$$\int x \cos x\,dx$$

Watch Video Solution

6. Evaluate the following integrals:

$$\int x \sin 3x dx$$

Watch Video Solution

7. Evaluate the following integrals:

$$\int x^2 \sin x dx$$

Watch Video Solution

8. Evaluate the following integrals:

$$\int (1-x)^2 \sin 2x dx$$

Watch Video Solution

9. Evaluate the following integrals:

$$\int \sin^{-1} x dx$$

Watch Video Solution

10. Evaluate the following integrals:

$$\int x^2 \tan^{-1} x dx$$

Watch Video Solution

11. Evaluate the following integrals:

$$\int x \cos^{-1} x dx$$

Watch Video Solution

12. Evaluate the following integrals:

$$\int x^2 \sin^{-1} x dx$$

Watch Video Solution

13. Evaluate the following integrals:

$$\int x^2 \cot^{-1} x dx$$

Watch Video Solution

14. Evaluate the following integrals:

$$\int 3x \sin 2x dx$$

Watch Video Solution

15. Evaluate the following integrals:

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

Watch Video Solution

16. Evaluate the following integrals :

$$\int \frac{x \sin^{-1} x}{\sqrt{1-x^2}}\, dx$$

Watch Video Solution

17. Evaluate the following integrals:

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

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Assignment Section Vii Most Important Questions For Practice

1. Evaluate the following integrals:

$$\int e^x \cos x dx$$

Watch Video Solution

2. Evaluate the following integrals:

$$\int e^x \sin 3x dx$$

Watch Video Solution

3. Evaluate the following integrals:

$$\int e^x \left(\sin^{-1} x + \frac{1}{\sqrt{1-x^2}} \right) dx$$

Watch Video Solution

4. Evaluate the following integrals:

$$\int e^x \left(\tan x + \sec^2 x \right) dx$$

Watch Video Solution

5. Evaluate the following integrals:

$$\int e^x \sec x(1+\tan x)dx$$

Watch Video Solution

6. Evaluate the following integrals:

$$\int e^x \left(\cos ec^2 x - \cot x\right)dx$$

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7. Evaluate the following integrals:

$$\int e^x (\tan x + \log \sec x) dx$$

Watch Video Solution

8. Evaluate the following integrals:

$$\int e^x \left(\frac{1 - \sin x}{1 - \cos x} \right) dx$$

Watch Video Solution

9. Evaluate the following integrals:

$$\int e^{2x}\left(\frac{1-\sin 2x}{1-\cos 2x}\right)dx$$

Watch Video Solution

10. Evaluate the following integrals:

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

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11. Evaluate the following integrals:

$$\int e^x \left(\frac{x-1}{(x+1)^3} \right) dx$$

Watch Video Solution

12. Evaluate the following integrals:

$$\int e^x \left(\frac{x^2+1}{(x+1)^2} \right)$$

Watch Video Solution

13. Evaluate the following integrals:

$$\int \frac{x-4}{(x-2)^3} . e^x dx$$

Watch Video Solution

14. Evaluate the following integrals:

$$\int \cos ec^3 x dx$$

Watch Video Solution

15. Evaluate the following integrals:

$$\int\left(\log(\log x)+\frac{1}{(\log x)^2}\right)dx$$

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16. Evaluate the following integrals:

$$\int\left[\frac{1}{\log x}-\frac{1}{(\log x)^2}\right]dx$$

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Assignment Section Viii Most Important Questions For Practice

1. Evaluate the following integrals:

$$\int \frac{1}{x^2 - 9} dx$$

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2. Evaluate the following integrals:

$$\int \frac{x^2}{1 - x^6} dx$$

Watch Video Solution

3. Evaluate the following integrals:

$$\int \frac{1}{(x+1)(x+2)} dx$$

Watch Video Solution

4. Evaluate the following integrals:

$$\int \frac{dx}{x^2 - 5x + 6} dx$$

Watch Video Solution

5. Evaluate the following integrals:

$$\int \frac{2x-1}{(x-1)(x+2)(x-3)}$$

Watch Video Solution

6. Evaluate the following integrals:

$$\int \frac{x^2}{(x-1)(x-2)(x-3)}dx$$

Watch Video Solution

7. Evaluate the following integrals:

$$\int \frac{2x-3}{(x^2-1)(2x+3)}dx$$

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8. Evaluate the following integrals:

$$\int \frac{12x^2-2x-9}{(4x^2-1)(x+3)}dx$$

Watch Video Solution

9. Evaluate the following integrals:

$$\int \frac{x^2+1}{x^2-5x+6}dx$$

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10. Evaluate the following integrals:

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

Watch Video Solution

11. Evaluate the following integrals:

$$\int \frac{2x}{(x^2+1)(x^2)} \text{dx}$$

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12. Evaluate the following integrals:

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

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13. Evaluate the following integrals:

$$\int \frac{\sin 2x}{(1+\sin x)(2-\sin x)}\,dx$$

Watch Video Solution

14. Evaluate the following integrals:

$$\int \frac{1}{\sin x - \sin 2x}\,dx$$

Watch Video Solution

15. Evaluate the following integrals:

$$\int \frac{x^2}{(x^2+1)(x^2+4)} \text{dx}$$

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16. Evaluate the following integrals:

$$\int \frac{x^2+1}{(x^2+4)(x^2+25)} dx$$

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17. Evaluate the following integrals:

$$\int \frac{1}{x(x^4+1)}dx$$

Watch Video Solution

18. Evaluate the following integrals:

$$\int \frac{1}{x(x^3+8)}dx$$

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19. Evaluate the following integrals:

$$\int \frac{1}{x(x^7-1)}dx$$

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20. Evaluate the following integrals:

$$\int \frac{1}{e^x-1}dx$$

Watch Video Solution

21. Evaluate the following integrals:

$$\int \frac{3x-2}{(x+1)(x+3)}dx$$

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22. Evaluate the following integrals:

$$\int \frac{3x+1}{(x+1)^2(x+3)}dx$$

Watch Video Solution

23. Evaluate the following integrals:

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

Watch Video Solution

24. Evaluate the following integrals:

$$\int \frac{3x+5}{x^3-x^2-x+1} dx$$

Watch Video Solution

25. Evaluate the following integrals:

$$\int \frac{5x}{(x+1)(x^2+9)}dx$$

Watch Video Solution

26. Evaluate the following integrals:

$$\int \frac{5}{(x+2)(x^2+1)}dx$$

Watch Video Solution

27. Evaluate the following integrals:

$$\int \frac{2}{(1-x)(1+x^2)} dx$$

Watch Video Solution

28. Evaluate the following integrals:

$$\int \frac{dx}{x^3+x^2+x+1}$$

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Assignment Section Ix Most Important Questions For Practice

1. Evaluate the following integrals:

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

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2. Evaluate the following integrals:

$$\int \frac{\left(x^2-1\right) dx}{x^3}$$

Watch Video Solution

3. Evaluate the following integrals:

$$\int \frac{x^2+1}{x^4-x^2+1}dx$$

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4. Evaluate the following integrals:

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

Watch Video Solution

5. Evaluate the following integrals:

$$\int \frac{1}{4+5\cos x}dx$$

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6. Evaluate the following integrals:

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

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7. Evaluate the following integrals:

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

Watch Video Solution

8. Evaluate the following integrals:

$$\int \frac{2\sin x + 3\cos x}{3\sin x + 4\cos x} dx$$

Watch Video Solution

9. Evaluate the following integrals:

$$\int \frac{\sin x}{\sin x + \cos x} dx$$

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10. Evaluate the following integrals:

$$\int \frac{dx}{4 + 3\tan x}$$

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11. Evaluate the following integrals:

$$\int \frac{dx}{3 + 4\cot x}$$

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12. Evaluate the following integrals:

$$\int \frac{dx}{(x-1)\sqrt{x+2}}$$

Watch Video Solution

13. Evaluate the following integrals:

$$\int_0^{\frac{\pi}{2}} \left(\sin^2\left(\frac{x}{2}\right) - \cos^2\left(\frac{x}{2}\right)\right) dx$$

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14. Evaluate the following integrals:

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

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Assignment Section X Most Important Questions For Practice

1. Evaluate the following integrals:

$$\int_0^{\pi/2} \cos^2 x\,dx$$

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2. Evaluate the following integrals:

$$\int_0^{\pi/2} \sin^3 x\,dx$$

Watch Video Solution

3. Evaluate the following integrals:

$$\int_0^{\pi/2} \left(\sin^2\frac{x}{2} - \cos^2\frac{x}{2}\right) dx$$

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4. Evaluate the following integrals:

$$\int_2^3 \frac{x}{x^2+1} dx$$

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5. Evaluate the following integrals:

$$\int_1^3 \frac{dx}{x^2(1+x)}$$

Watch Video Solution

6. Evaluate the following integrals:

$$\int (1-x)\sqrt{x}dx$$

Watch Video Solution

7. Evaluate the definite integral:

$$\int_{\frac{\pi}{6}}^{\frac{\pi}{3}} \frac{\sin x + \cos x}{\sqrt{\sin 2x}} dx$$

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8. Evaluate the following integrals:

$$\int \sqrt{ax + b} dx$$

Watch Video Solution

9. Evaluate the following integrals:

$$\int_0^{\pi/2} \frac{1}{a\sin x + b\cos x} dx$$

Watch Video Solution

10. Evaluate the following integrals:

$$\int \left(\sqrt{x} + \frac{1}{\sqrt{x}}\right) dx$$

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11. Evaluate the following integrals:

$$\int_0^{\pi/2} \frac{dx}{2\cos x + 4\sin x}$$

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12. Evaluate the definite integral:

$$\int_0^{\frac{\pi}{4}} \frac{\sin x + \cos x}{9 + 16\sin 2x} dx$$

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Assignment Section Xi Most Important Questions For Practice

1. By using the properties of definte, prove that

$$\int_0^{\pi/2} \cos^2 x dx = \frac{\pi}{4}$$

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2. By using the properties of definte, prove that

$$\int_0^{\pi/2} \frac{\sin x}{\sin x + \cos x} = \frac{\pi}{4}$$

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3. By using the properties of definte, prove that

$$\int_0^{\pi/2} \frac{\sin^3 x}{\sin^3 x + \cos^3 x} dx = \frac{\pi}{4}$$

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4. By using the properties of definte, prove that

$$\int_0^{\pi/2} \frac{\sin^{3/2} x}{\sin^{3/2} x + \cos^{3/2} x} dx = \frac{\pi}{4}$$

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5. By using the properties of definte, prove that

$$\int_0^{\pi/2} \frac{dx}{1+\tan^3 x} dx = \frac{\pi}{4}$$

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6. By using the properties of definte, prove that

$$\int_0^{\pi/2} \frac{dx}{1+\sqrt{\cot x}} = \frac{\pi}{4}$$

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7. By using the properties of definte, prove that

$$\int_0^{\pi/2} \frac{\sqrt{\cot x}}{\sqrt{\tan x}+\sqrt{\cot x}} = \frac{\pi}{4}$$

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8. By using the properties of definte, prove that

$$\int_0^{\pi} \frac{e^{\cos x}}{e^{\cos x}+e^{-\cos x}} dx = \frac{\pi}{2}$$

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9. By using the properties of definte, prove that

$$\int_0^a \frac{\sqrt{x}dx}{\sqrt{x}+\sqrt{a-x}} = \frac{a}{2}$$

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10. By using the properties of definte, prove that

$$\int_0^a \frac{1}{x+\sqrt{a^2-x^2}} = \frac{\pi}{4}$$

Watch Video Solution

11. Evaluate the following integrals :

$$\int_{\pi/6}^{\pi/3} \frac{dx}{1+\sqrt{\cot x}}$$

Watch Video Solution

12. Evaluate the following integrals :

$$\int_{1}^{3} \frac{\sqrt{4-x}}{\sqrt{x}-\sqrt{4-x}} dx$$

Watch Video Solution

13. Evaluate the following integrals :

$$\int_{-8}^{8} \log\left(\frac{2+x}{2-x}\right) dx$$

Watch Video Solution

14. Evaluate the following integrals :

$$\int_{-2}^{2} \log\left(\frac{2+x}{2-x}\right) dx$$

Watch Video Solution

15. Evaluate the following integrals :

$$\int_0^1 |3x - 1| dx$$

Watch Video Solution

16. Evaluate the following integrals :

$$\int_{-\pi/2}^{\pi/2} \sin^5 x dx$$

Watch Video Solution

17. Evaluate the following integrals :

$$\int_0^1 |3x - 1| dx$$

Watch Video Solution

18. Evaluate the following integrals :

$$\int_{-3}^1 |x + 2| dx$$

Watch Video Solution

19. Evaluate the following integrals :

$$\int_0^1 |2x - 1| dx$$

Watch Video Solution

20. Evaluate the following integrals :

$$\int x\sqrt{1 + 2x^2} dx$$

Watch Video Solution

21. Evaluate the following integrals :

$$\int_0^{\pi} |\cos x| dx$$

Watch Video Solution

22. Evaluate the following integrals :

$$\int_{-\pi/4}^{\pi/4} |\sin x| dx$$

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23. Prove that :

$$\int_0^1 x(1-x)^n dx = \frac{1}{(n+1)(n+2)}$$

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24. By using the properties of definite integrals, evaluate the integral:

$$\int_0^{\frac{\pi}{2}} \frac{\sin x - \cos x}{1 + \sin x \cos x} dx$$

Watch Video Solution

25. Using property of define integrals, prove that :

$$\int_0^{\pi/2} \sin 2x \log \tan x dx = 0$$

Watch Video Solution

26. Using property of define integrals, prove that :

$$\int_0^1 \frac{\log(1+x)}{1+x^2} = \frac{\pi}{8}\log 2$$

Watch Video Solution

27. Using property of define integrals, prove that :

$$\int_0^1 \log\left(\frac{1}{x} - 1\right) dx = 0$$

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28. Evaluate $\int \left(2x^2 - 3\sin x + 5\sqrt{x}\right) dx$

Watch Video Solution

29. Evaluate $\int \frac{(3 - 4\sin x) dx}{\cos^2 x}$

Watch Video Solution

30. Using property of define integrals, prove that :

$$\int_0^{\pi/2} \log \cos x dx = \frac{-\pi}{2} \log 2$$

Watch Video Solution

31. Evaluate $\int \frac{3x dx}{1 + 2x^4}$

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Assignment Section Xii Most Important Questions For Practice

1. Evaluate the following integrals :

$$\int_0^{\frac{\pi}{2}} \left(\cos^2 x\right) dx$$

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2. Evaluate the following integrals :

$$\int \frac{x^2 - 1}{x^4 + 1} dx$$

Watch Video Solution

3. Evaluate the following integrals :

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

Watch Video Solution

4. Evaluate the following integrals :

$$\int \frac{x^2 - 1}{x^4 + x^2 + 1} dx$$

Watch Video Solution

5. Evaluate the following integrals :

$$\int(\sqrt{\tan x}+\sqrt{\cot x})\,dx$$

Watch Video Solution

6. Evaluate the following integrals :

$$\int\sqrt{\cot x}dx$$

Watch Video Solution

7. Evaluate $\int\sin 3x\cos 4xdx$

Watch Video Solution

8. Evaluate $\int \frac{x^2 dx}{\sqrt{x^6 + a^6}}$

Watch Video Solution

9. Evaluate :

$$\int_1^2 (2x + 3) dx$$

Watch Video Solution

10. Evaluate :

$$\int_1^2 (3x^2 + 5x)\,dx$$

Watch Video Solution

11. Evaluate the following integral

$$\int \sin^2(2x + 5)\,dx$$

Watch Video Solution

12. Evaluate :

$$\int_0^2 (x^2 + x + 2)\, dx$$

Watch Video Solution

13. Evaluate $\int \sin^3 x \cos^3 x dx$

Watch Video Solution

14. Evaluate $\int \sin 4x \sin 8x dx$

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15. Evaluate $\int \frac{\sin^2 x dx}{1+\cos x}$

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16. Evaluate the following as limit of a sum :

$\int_a^b e^x dx$

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17. Evaluate the following as limit of a sum :

$$\int_2^4 3^x dx$$

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Previous Years Board S Questions For Practice

1. $\int \sec^4 x \tan x \, dx$ equals :

A. $\frac{1}{4}\sec^4 + x + C$

B. $4\sec^4 x + C$

C. $\frac{\sec^3 x}{3} + C$

D. $\sec^3 x + C$

Answer: A

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2. $\int e^x (f(x) + f'(x))dx$ is equal to :

A. $e^x f(x) + C$

B. $e^x f'(x) + C$

C. $e^x + f(x)$

D. None of these

Answer: A

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3. $\int \frac{dx}{\sqrt{1-x^2}}$ is equal to :

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

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

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

D. $\cot^{-1} x + C$

Answer: B

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4. $\int_{-1}^{1}\left(x^{91}-x^{93}\right)$ is equal to

A. 2

B. $\frac{93}{4324}$

C. -1

D. 0

Answer: D

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5. $\int_0^{\pi/2} \left(\frac{\sqrt{\cos x}}{\sqrt{\sin x} + \sqrt{\cos x}} \right) dx$ is equal to

A. $\frac{\pi}{2}$

B. $\frac{\pi}{6}$

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

D. None of these

Answer: C

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6. Evaluate : $\int \frac{dx}{x^2 - 6x + 13}$.

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

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

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

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

Answer: B

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7. Evaluate the following integrals :

$$\int \frac{\cos x - \cos \alpha}{\cos \frac{x}{2} + \cos \frac{\alpha}{2}} \text{dx}$$

Watch Video Solution

8. Evaluate the following integrals :

$$\int \frac{1}{\sqrt{x+2} - \sqrt{x+3}} dx$$

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9. Evaluate the following integrals :

$$\int \frac{1}{\sqrt{x+3} - \sqrt{x+2}} dx$$

Watch Video Solution

10. Evaluate the following integrals :

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

Watch Video Solution

11. Evaluate the following integrals :

$$\int \frac{x \tan^{-1} x}{(1 + x^2)^{3/2}} dx$$

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12. Evaluate the following integrals :

$$\int \frac{x \sin^{-1} x}{\sqrt{1-x^2}}\, dx$$

Watch Video Solution

13. Evaluate the following integrals :

$$\int \log(1-x)^2 dx$$

Watch Video Solution

14. Evaluate the following integrals :

$$\int \frac{dx}{(\sqrt{x+a}+\sqrt{x+b})}$$

Watch Video Solution

15. Evaluate the following integrals :

$$\int \frac{\sin x}{\sin 3x} dx$$

Watch Video Solution

16. Evaluate the following integrals :

$$\int \frac{x^2 - 1}{x^4 + x^2 + 1} dx$$

Watch Video Solution

17. Evaluate the following integrals :

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

Watch Video Solution

18. Evaluate the following integrals :

$$\int \frac{dx}{1 - \sin x + \cos x}$$

Watch Video Solution

19. Evaluate the following integrals :

$$\int \cos^4 x . \, dx$$

Watch Video Solution

20. Evaluate the following integrals :

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

Watch Video Solution

21. Evaluate the following integrals :

$$\int_0^{\pi/2} (2\log\cos x - \log\sin 2x) dx$$

Watch Video Solution

22. Prove that : $\int_0^{\pi} \frac{x\tan x}{\sec x \cos ecx} dx = \frac{\pi^2}{4}.$

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23. Evaluate the following as limit of sum

$$\int_1^3 2^x dx$$

Watch Video Solution

24. Evaluate $\int \frac{(\cos x - \sin x)dx}{1 + \sin 2x}$

Watch Video Solution

25. Evaluate the following integral

$$\int \frac{\left(e^{5\log x} - e^{4\log x}\right)dx}{\left(e^{3\log x} - e^{2\log x}\right)}$$

Watch Video Solution

26. Evaluate the following as limit of sum

$$\int \frac{x+2}{\sqrt{x^2+2x+3}}dx$$

Watch Video Solution

27. Evaluate the following integrals:

$$\int x^3 \sqrt{3 + 5x^4} dx$$

Watch Video Solution

28. Evaluate the following integrals:

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

Watch Video Solution

29. Evaluate the following integrals:

$$\int e^x \left(\log x + \frac{1}{x} \right) dx$$

Watch Video Solution

30. Evaluate the following integrals:

$$\int \cos^3 x e^{\log \sin x} dx$$

Watch Video Solution

31. Evaluate the following integrals:

$$\int \frac{1}{x^3+1} dx$$

Watch Video Solution

32. Evaluate the following integrals:

$$\int (2x+4)\sqrt{x^2+4x+3} dx$$

Watch Video Solution

33. Evaluate the following integrals:

$$\int_0^2 \left(x^2 + 3\right) dx$$

Watch Video Solution

34. Evaluate the following integrals:

$$\int_0^2 \left(x^3 + 1\right) dx$$

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35. Evaluate the following integrals:

$$\int \cos^4 2x\, dx$$

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36. Evaluate the following integrals:

$$\int x(\log x)^2 dx$$

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37. Evaluate the following integrals:

$$\int x \cos^{-1} x dx$$

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38. Evaluate the following integrals:

$$\int \frac{dx}{x^2 - 6x + 13}$$

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39. Evaluate the following integrals:

$$\int \frac{1}{3x^2 + 13x - 10} \text{dx}$$

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40. Evaluate the following integrals:

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

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41. Find: $\int \frac{(3\sin\phi - 2)\cos\phi}{5 - \cos^2\phi - 4\sin\phi} d\phi$

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42. Evaluate the following integrals:

$$\int_0^{\pi/2} \frac{\sin x - \cos x}{1 + \sin x \cos x} dx$$

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43. Evaluate the following integrals:

$$\int_{-\pi/4}^{\pi/4} \sin^2 x dx$$

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44. Evaluate the following integrals:

$$\int_{-\pi/4}^{\pi/2} \sin^2 x dx$$

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45. Prove that: $\int_0^{2\pi} \cos^5 x = 0$

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46. Evaluate $\int_0^{\pi} \log(1+\cos x) dx$

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47. Evaluate the following integrals :

$$\int \frac{1}{\sqrt{x} - x} dx$$

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48. Evaluate the following integrals :

$$\int \frac{1}{x - \sqrt{x}} dx$$

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49. Evaluate the following integrals :

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

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50. Evaluate the following integrals :

$$\int \frac{1}{\sin^2 x + 4\cos^2 x} dx$$

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51. Evaluate $\int_0^{\frac{\pi}{2}} \frac{\cos x}{(2+\sin x)(3+\sin x)} dx$

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52. Evaluate $\int_0^{\frac{\pi}{2}} \frac{\cos x}{(3+\sin x)(4+\sin x)} dx$

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53. Evaluate the following integrals :

$\int_0^{\pi/2} \frac{\cos x}{(4+\sin x)(5+\sin x)} dx$

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54. Evaluate the following integrals :

$$\int_0^{\pi/2} \frac{2\sin x + 3\cos x}{\sin x + \cos x} dx$$

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55. Using properties of definite integrals, show that

$$\int_0^{\pi/2} \frac{x dx}{\sin x + \cos x} = \frac{\pi}{2\sqrt{2}} \log\left(\sqrt{2} + 1\right)$$

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56. Using properties of definite integrals, show that

$$\int_0^{\pi/2} \frac{\sin^2 x}{\sin x + \cos x} dx = \frac{1}{\sqrt{2}} \log\left(\sqrt{2} + 1\right)$$

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57. Prove that : $\int_0^{\pi} \frac{x \tan x}{\sec x \cos ecx} dx = \frac{\pi^2}{4}.$

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58. Evaluate: $\int \frac{5x}{(x+1)(x^2-4)} dx$

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59. Evaluate the following integrals :

$$\int \sin^2 x \cos^2 x dx$$

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60. Evaluate the following integrals :

$$\int \frac{\sin^3 x}{\cos x} dx$$

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61. Evaluate the following integrals :

$$\int \frac{\cos^3 x}{\sin x} dx$$

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62. Evaluate the following integrals :

$$\int \frac{dx}{e^x + 3e^{-x}}$$

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63. Evaluate the following integrals :

$$\int \frac{1}{\sqrt{x^2 - 6x + 16}} dx$$

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64. Evaluate, $\int \sqrt{\left(\frac{2-x}{2+x}\right)}$.dx

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65. Evaluate the following integrals :

$$\int \sqrt{\frac{3-x}{3+x}}\,dx$$

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66. Evaluate : $\int \log\left(1+x^2\right)dx.$

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67. Evaluate, $\int \log\left(2+x^2\right)$ dx.

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68. Evaluate , $\int \log\left(4+x^2\right)\,dx$.

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69. Evaluate $\int_{-1}^{1} |2x-1|\,dx$

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70. Evaluate the following integrals :

$\int_{-1}^{1} (2x+1)dx$

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71. Evaluate $\int_{-2}^{2} |2x+3| \, dx$

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72. Find the following integrals

$$\int \frac{x}{(x-1)(x-2)(x-3)} dx$$

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73. Find the following integral: $\int \frac{dx}{\sqrt{5x^2 - 2x}}$

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74. Evaluate : $\int_0^{\frac{\pi}{2}} \frac{\sin^{\frac{3}{2}} x}{\sin^{\frac{3}{2}} x + \cos^{\frac{3}{2}} x} dx.$

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75. Find the following integrals

$\int_0^{\pi/2} \frac{\sin^4 x}{\sin^4 x + \cos^4 x} dx$

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76. Find the following integrals

$$\int_0 \to \left(\frac{\pi}{2}\right) \frac{\cos^5 x}{\sin^5 x + \cos^5 x} dx$$

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77. Find the following integrals

$$\int \frac{\cos x}{\cos(x - \alpha)} dx$$

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78. Find the following integrals

$$\int \frac{\cos x}{\cos(x+\alpha)} dx$$

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79. Find the following integrals

$$\int e^x (\sin x + \cos x) dx$$

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80. Evaluate the following integrals:

$$\int e^x (\tan x + \log \sec x) dx$$

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81. $\int e^x(\cot x + \log \sin x)dx$ is equal to :

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82. Evaluate the following integrals:

$$\int \frac{2}{(1-x)(1+x^2)}dx$$

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83. Find the following integrals

$$\int \frac{7}{(x+2)(x^2+4)}$$

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84. Find the following integrals

$$\int_2^8 |x-5|dx$$

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85. Find the following integral: $\int \frac{1}{1+\tan x} dx$

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86. Find the following integrals

$$\int \frac{1}{1-\tan x} dx$$

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87. Evaluate the following integrals :

$$\int \frac{1}{1+\cos x} dx$$

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88. Find the following integrals

$$\int x \log x dx$$

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89. Evaluate $\int e^x \left(\frac{1+\sin x}{1+\cos x} \right) dx$

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90. Using properties of definite integral prove that $\int_0^2 x\sqrt{2-x}dx = \frac{16\sqrt{2}}{15}$

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91. Prove that :

$$\int_0^1 x(1-x)^n dx = \frac{1}{(n+1)(n+2)}$$

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92. Evaluate the following integrals :

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

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93. Evaluate the following cards:

$$\int e^x \cos 3x dx$$

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94. Evaluate the following cards:

$$\int e^{3x} \cos 5x dx$$

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95. Evaluate : $\int \frac{\sec^2 x}{\sqrt{\tan^2 x + 2\tan x + 5}} dx.$

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96. Evaluate the following :

$$\int \frac{x}{(x^2+1)(x-1)} dx$$

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97. Evaluate the following cards:

$$\int x\sqrt{x+x^2} dx$$

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98. Evaluate the following cards:

$$\int_0^4 |x-1|dx$$

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