Integrals

Class XII

MCQ Worksheet

Integrals

Evaluate: $\int \frac{\cos x}{\cos (x-a)} dx$

A $(x-a)\cos a + \sin a \log \sec (x-a)$

B $(x-a)\sin a - \cos a \log \sec (x-a)$

C $(x-a)\cos a - \sin a \log \sec (x-a)$

D $(x-a)\sin a + \cos a \log \sec (x-a)$

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

Integrals

A $-\frac{1}{2(x^2 + 2e^x \sin x + \cos^2 x)} + c$

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

C $-\frac{1}{2(x^2 + 2e^x \cos x - \sin^2 x)} + c$

D $-\frac{1}{2(x^2 + 2e^x \cos x + \sin^2 x)} + c$

Integrals

$$\int \frac{1}{(2\sin x + 3\cos x)^2}\,dx.$$

A $\frac{1}{2(2\tan x + 3)}$

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

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

D $-\frac{1}{2(2\tan x - 3)}$

Evaluate: $\int \frac{1}{\cos x\,(\sin x + 2\cos x)}\,dx$

Integrals

A $\log(\tan x + 2)$

B $\log(\tan x - 2)$

C $\log(\sec x + 2)$

D $-\log(\tan x + 2)$

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

Integrals

A $e^{\sin x}(x - \sec x) + c$

B $e^{\sin x}(x + \sec x) + c$

C $e^{\sin x}(x\cos x + \sin x) + c$

D $e^{\sin x}(x\cos x - \sin x) + c$

Integrals

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

A $\frac{1}{2} \log |\sin x - \cos x| - \frac{x}{2} + c$

B $\frac{1}{2} \log |\sin x - \cos x| + \frac{x}{2} + c$

C $\log |\sin x - \cos x| + x + c$

D $\log |\sin x - \cos x| - x + c$

Integrals

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

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

B $\log|1+\sin^2 x|+c$

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

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

Integrals

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

A $\log\left|\frac{1+\sin x}{2+\sin x}\right| + c$

B $\log\left|\frac{2+\sin x}{1+\sin x}\right| + c$

C $\log|(1+\sin x)(2+\sin x)| + c$

D $\log|(1+\sin x)+(2+\sin x)| + c$

Integrals

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

A $\frac{1}{\sqrt{2}} \log |\tan(\frac{x}{2} - \frac{\pi}{8})| + c$

B $\frac{1}{\sqrt{2}} \log |\tan(\frac{x}{2} + \frac{3\pi}{8})| + c$

C $\frac{1}{\sqrt{2}} \log |\tan(\frac{x}{2} - \frac{3\pi}{8})| + c$

D $\frac{1}{\sqrt{2}} \log |\cot(\frac{x}{2})| + c$

Integrals

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

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

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

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

D $\frac{x^2}{2}\sqrt{1+x^2}+\frac{1}{2}x^2\log|x+\sqrt{1+x^2}|+C$

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

Integrals

A $\frac{2x+1}{4}\sqrt{x^2-x+1} + \frac{3}{8}\log\left\{\frac{2x+1}{2} + \sqrt{x^2-x+1}\right\}$

B $\frac{2x-1}{4}\sqrt{x^2-x+1} + \frac{3}{8}\log\left\{\frac{2x-1}{2} + \sqrt{x^2-x+1}\right\}$

C $\frac{2x+1}{2}\sqrt{x^2-x+1} + \frac{3}{8}\log\left\{\frac{2x-1}{4} + \sqrt{x^2-x+1}\right\}$

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

Evaluate : $\int \sqrt{1+3x-x^2}\,dx.$

Integrals

A $\frac{2x-5}{4}\sqrt{1+5x-x^2}+\frac{13}{8}\sin^{-1}\left(\frac{2x-3}{\sqrt{13}}\right)+C$

B $\frac{2x-3}{4}\sqrt{1+3x-x^2}+\frac{13}{8}\sin^{-1}\left(\frac{2x-3}{\sqrt{13}}\right)+C$

C $\frac{3x-2}{4}\sqrt{1+3x-x^2}+\frac{13}{8}\sin^{-1}\left(\frac{2x-3}{\sqrt{13}}\right)+C$

D $\frac{2x-3}{4}\sqrt{1+2x-x^2}+\frac{13}{7}\sin^{-1}\left(\frac{2x-3}{\sqrt{13}}\right)+C$

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