

Watch. Practice. Understand. | Lesson 326

Calculus 7 2 Trigonometric Integrals

Watch the matching video: <https://www.youtube.com/watch?v=gmluKRzXIUo>

Practice focus: Trigonometric integrals

Original extra practice matched to the listed lesson topic.

Name: _____ Date: _____ Show your reasoning and check units.

01 Integrate $\sin^3 x \cos x \, dx$.

02 Integrate $\sin^2 x \, dx$.

03 Integrate $\sec^2 x \tan x \, dx$.

04 Integrate $\sin x \cos x \, dx$ using two valid methods.

Worked answers | Lesson 326

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Practice focus: Trigonometric integrals

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01 Integrate $\sin^3 x \cos x \, dx$.

$u = \sin x$ gives $u^4/4 + C = \sin^4 x/4 + C$.

02 Integrate $\sin^2 x \, dx$.

Use $\sin^2 x = (1 - \cos 2x)/2$. Result $x/2 - \sin 2x/4 + C$.

03 Integrate $\sec^2 x \tan x \, dx$.

$u = \tan x$, $du = \sec^2 x \, dx$. Result $\tan^2 x/2 + C$.

04 Integrate $\sin x \cos x \, dx$ using two valid methods.

$u = \sin x$ gives $\sin^2 x/2 + C$. Product-to-sum gives $-\cos 2x/4 + C$; these differ only by a constant.