

SHOW ALL YOUR WORK. NO CREDITS FOR WNSWERS NOT SUPPORTED BY WORK.

Problem 1: Find $f'(x)$ for each of the following functions and simplify your answers.

(a) $f(x) = \tan^4 x^5$.

(b) $f(x) = \ln \sqrt{\cos x}$.

(c) $f(x) = \csc(1-5x^2)$.

Problem 2: Evaluate the following integrals:

(a) $\int \frac{\cos x \, dx}{1 + \sin x}$

(b) $\int \tan^4 \sec^2 x \, dx$

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Problem 1: Find $f'(x)$ for each of the following functions and simplify your answers.

(a) $f(x) = \sec^2(\sin x)$

(b) $f(x) = \ln \sqrt{\cos x}$

(c) $f(x) = e^{\cot x}$

Problem 2: Evaluate the following integrals:

(a) $\int \sec^2 x \tan x \, dx$

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

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Problem 1: Find $f'(x)$ for each of the following functions and simplify your answers.

(a) $f(x) = \tan^4(\sin x)$.

(b) $f(x) = \cos \sqrt{1 + \ln x}$.

(c) $f(x) = x \sec x^2$.

Problem 2: Evaluate the following integrals:

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

$$(b) \int \sqrt{\cot x} \, \csc^2 x \, dx$$
