408L CLASS PROBLEMS

FEBRUARY 3RD, 2020

Problem 1. Work with a partner on this problem.

(1) Find $\int \tan(x)\sec^2(x)dx$ via u-substitution.
    Partner A should solve the problem with $u = \tan(x)$; Partner B should use $u = \sec(x)$.
(2) Reconcile.

Problem 2. Find $\int_{-3}^{3} \sin(x) \cdot x^4 dx$.

Problem 3. Suppose f is a function with $\frac{df}{dx} = \frac{\cos x}{2+\sin x}$. Suppose $f(0) = 1$. Find $f(10)$.

Problem 4. Find an anti-derivative of the function $\log(\cos(x)^{\tan(x)})$ defined on the interval $-\frac{\pi}{2} < x < \frac{\pi}{2}$.