Calculus 2 Unit 1 worksheet: Trigonometric integrals

Name _____ Date _____ Period _____

1. Find each integral. Say which factor you set aside for du.

(a) $\int \sin^3 2x \, dx$

(b) $\int \sin^5 x \cos^3 x \, dx$

(c) $\int \dfrac{\cos^3 x}{\sin^2 x} \, dx$

(d) $\int \dfrac{\sin^3 x}{\cos^4 x} \, dx$

2. Find each integral. Say which factor you set aside for du, or how you peeled off a power.

(a) $\int \sqrt{\tan x} \, \sec^4 x \, dx$

(b) $\int \tan^5 x \sec^3 x \, dx$

(c) $\int \tan^6 x \, dx$

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3. Find $\int \sin 5x \cos 3x \, dx$.

4. Evaluate $\int_0^{\pi/4} \cos^4 x \, dx$ exactly.

5. Evaluate $\int_0^{\frac{\pi}{4}} \tan^5 x \sec^4 x \, dx$ exactly.

6. Naomi and Diego each find $\int \sin^3 x \cos^3 x \, dx$. Naomi sets one factor $\sin x$ aside; Diego sets one factor $\cos x$ aside.

(a) Carry out Naomi's route.

(b) Carry out Diego's route.

(c) The two antiderivatives look different. Show that Naomi's minus Diego's is a constant, and find that constant.

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