Math 101 – WORKSHEET 13
TRIGONOMETRIC INTEGRALS

Formulas to memorize: $(\sin x)' = \cos x$, $(\cos x)' = \sin x$, $(\tan x)' = \sec^2 x$,

$$\sin(2x) = 2\sin x \cos x \qquad \cos(2x) = 2\cos^2 x - 1 \qquad \cos^2 x = \frac{1 + \cos(2x)}{2} \qquad \sin^2 x = \frac{1 - \sin(2x)}{x}$$

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(1) Evaluate the integrals

(a) $\int \sin^4 x \cos^3 x \, \mathrm{d}x$

(b) $\int \sin^5 x \cos^4 x \, \mathrm{d}x$

(c) $\int \sin^4 x \cos^4 x \, \mathrm{d}x$

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(2) Powers of tangent and secant

    (a) Evaluate $\int_0^{\pi/4} \tan x \, \mathrm{d}x$

    (b) Evaluate $\int_{-\pi/4}^{+\pi/4} \tan x \, \mathrm{d}x$