# Calculus 2 Unit 1 quiz 1: Integration by parts, Trigonometric integrals, Trigonometric substitution

Name _____ Date _____ Period _____

8 questions, 20 points

**1.** Find $\int (x-3)\,5^x\,dx$. (2 points)

**2.** Find $\int \sin^3 2x \cos^3 2x\,dx$. (2 points)

**3.** Find $\int \tan^3 4x \sec^9 4x\,dx$. (2 points)

**4.** An integral was worked with the substitution $x = 3\tan\theta$, and the result in $\theta$ is $\frac{\theta}{2} + \frac{\sin 2\theta}{4} + C$. Write the result in terms of $x$. (2 points)

**5.** Evaluate $\int_0^{\pi/4} x\sec^2 x\,dx$ exactly. You may use $\int \tan x\,dx = -\ln|\cos x| + C$. (3 points)

**6.** Use tabular integration to find $\int (x^2-2x)e^{3x}\,dx$. Write the answer as $e^{3x}$ times a polynomial. (3 points)

**7.** Evaluate $\int_0^{\pi/6} \sin^2 x \cos^2 x\,dx$ exactly. (3 points)

**8.** Find $\int \frac{x^2}{(16-x^2)^{3/2}}\,dx$. (3 points)


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