

Math 16 – section 9.1: Review of integration

Here are the forms that we can integrate:

A) $\int u^n du$	B) $\int \frac{1}{u} du$		
C) $\int \frac{1}{\sqrt{a^2-u^2}} du$	D) $\int \frac{1}{a^2+u^2} du$	E) $\int \frac{1}{u\sqrt{u^2-a^2}} du$	

F) $\int \sin u du$	G) $\int \cos u du$	H) $\int \tan u du$	
I) $\int \sec u du$	J) $\int \csc u du$	K) $\int \cot u du$	

L) $\int \sec^2 u du$	M) $\int \sec u \tan u du$	N) $\int \csc^2 u du$	O) $\int \csc u \cot u du$
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Each of the integrals below transform to one of the above forms after a u-substitution. Identify the form for each integral below. (Indicate the letter next to the integral.)

1.	$\int x(5x^2 + 1)^{10} dx$	2.	$\int \frac{x^2}{5x^3+4} dx$
3.	$\int \frac{1}{5x^2+4} dx$	4.	$\int \frac{x}{\sqrt{1-x^2}} dx$
5.	$\int \frac{\cos x}{\sin^2 x+1} dx$	6.	$\int \frac{1}{\sqrt{4-3x^2}} dx$
7.	$\int \frac{\sec^2 x}{\tan x} dx$	8.	$\int \frac{x^2}{9+x^6} dx$
9.	$\int x^3 \sec^2(5x^4 + 1) dx$	10.	$\int x^2 \sec(x^3) \tan(x^3) dx$
11.	$\int \frac{\cos x}{5 \sin x+3} dx$	12.	$\int \frac{\cos x}{(\sin x)^5} dx$
13.	$\int \frac{x^4}{\sqrt{9-x^{10}}} dx$	14.	$\int \frac{1}{x(\ln x)^5} dx$
14.	$\int \frac{1}{\sqrt{x}(5+3\sqrt{x})} dx$	16.	$\int \frac{1}{\sqrt{x}(5+3\sqrt{x})^{10}} dx$
17.	$\int \frac{1}{\cos x} dx$	18.	$\int \frac{1}{\sin x} dx$