

Lecture 26 Activity: u -Substitution

Ben Logsdon
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1. Calculate the following integrals with u -substitution using the given u .

1.1 $\int 2x \cos(x^2) dx, u = x^2$

1.2 $\int x^2 e^{(x^3)} dx, u = x^3$

1.3 $\int \frac{x^3}{1+(x^4-1)^2} dx, u = x^4 - 1$

1.4 $\int_0^2 (5x - 10)^{10} dx, u = 5x - 10$

1.5 $\int_6^9 (x + 1)\sqrt{x - 5} dx, u = x - 5$

2. Calculate the following integrals.

2.1 $\int \cos x e^{\sin x} dx$

2.2 $\int_0^1 x\sqrt{1-x^2} dx$

2.3 $\int \cos x (\sin(\sin x)) dx$

2.4 $\int_0^{\pi/4} \sec x \tan x dx$