

Math 199, Fall 2023
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11/8/23

Participation assignment 16 - The “anti-chain rule”

Estimated time: 35-50 minutes.

Point value: 3 points.

Goals: Understand how the method of u -substitution works by undoing the chain rule. Practice using u -substitution to compute integrals in both basic and creative ways.

1) Compute the following indefinite integrals.

(a) $\int (2x + 2)e^{x^2+2x+3} dx$

(b) $\int \frac{\sin(\ln x)}{x} dx$

(c) $\int x\sqrt{1-x}dx$

(d) $\int \frac{x+5}{2x+3}dx$

(e) $\int \sqrt{4-\sqrt{x}}dx$

$$(f) \int \tan x \sec^3 x dx$$

$$(g) \int x^3 \sqrt{x^2 + 5} dx$$

$$(h) \int x \tan(x^2) dx$$