

U- Substitution

Express each definite integral in terms of u .

1) $\int_{-1}^0 -24x^2(4x^3 + 1)^3 \, dx; \ u = 4x^3 + 1$

2) $\int_{-1}^0 6x(x^2 - 2)^2 \, dx; \ u = x^2 - 2$

3) $\int_0^1 \frac{2x}{(x^2 + 1)^3} \, dx; \ u = x^2 + 1$

4) $\int_0^2 \frac{12x}{(2x^2 + 4)^2} \, dx; \ u = 2x^2 + 4$

5) $\int_1^2 -\frac{2x}{(x^2 + 1)^2} \, dx; \ u = x^2 + 1$

6) $\int_{-1}^1 18x^2(3x^3 + 1)^2 \, dx; \ u = 3x^3 + 1$

Evaluate each indefinite integral.

7) $\int -\frac{24x}{4x^2 + 5} \, dx$

8) $\int -\frac{32x}{4x^2 - 5} \, dx$

9) $\int \frac{6\sec^2 3x}{\tan 3x} \, dx$

10) $\int \frac{15e^{3x}}{e^{3x} + 4} \, dx$