

## Integration by Substitution

1.  $\int \frac{x}{\cos^2(x^2)} dx$

2.  $\int \frac{3}{\sqrt{5-9x^2}} dx$

3.  $\int \frac{6e^{1/x}}{x^2} dx$

4.  $\int \frac{e^x}{1+e^{2x}} dx$

5.  $\int x^3 \sqrt{x^4+11} dx$

6.  $\int \frac{a^{\tan(t)}}{\cos^2(t)} dt$

7.  $\int \frac{x^2-x}{x+1} dx$  Hint: divide.

8.  $\int_2^3 t\sqrt{t^2-4} dt$

9.  $\int \frac{e^{\sin(z)}}{\sec z} dz$

10.  $\int_0^1 x10^{x^2} dx$

11.  $\int \frac{t^2 \cos(t^3-2)}{\sin^2(t^3-2)} dt$

12.  $\int \frac{x}{x^4+1} dx$

13.  $\int \frac{\cos(\ln(4x^2))}{x} dx$

14.  $\int \frac{\tan(z)}{\cos(z)} dz$

15.  $\int \frac{e^{\tan^{-1}(2t)}}{1+4t^2} dt$

16.  $\int_0^1 x^2(1+2x^3)^5 dx$

17.  $\int_0^3 \frac{dx}{2x+3}$

18.  $\int_e^{e^4} \frac{dx}{x\sqrt{\ln(x)}}$

19.  $\int_0^1 \cos(\pi t) dt$

20.  $\int_1^4 \frac{1}{x^2} \sqrt{1+\frac{1}{x}} dx$