

Appendix A

Table of Standard Integrals

1. $\int x^n dx = \frac{x^{n+1}}{n+1} + C \quad (n \neq -1)$
2. $\int \frac{dx}{x} = \log|x| + C$
3. $\int e^x dx = e^x + C$
4. $\int \sin x dx = -\cos x + C$
5. $\int \cos x dx = \sin x + C$
6. $\int \sec^2 x dx = \tan x + C$
7. $\int \operatorname{cosec}^2 x dx = -\cot x + C$
8. $\int \sinh x dx = \cosh x + C$
9. $\int \cosh x dx = \sinh x + C$
10. $\int \frac{dx}{\sqrt{a^2 - x^2}} = \sin^{-1} \frac{x}{a} + C$
11. $\int \frac{dx}{a^2 + x^2} = \frac{1}{a} \tan^{-1} \frac{x}{a} + C$
12. $\int \frac{dx}{\sqrt{x^2 + a^2}} = \sinh^{-1} \frac{x}{a} + C = \ln \left(x + \sqrt{x^2 + a^2} \right) + C'$
13. $\int \frac{dx}{\sqrt{x^2 - a^2}} = \cosh^{-1} \frac{x}{a} + C \quad (x > a)$
 $= \ln \left| x + \sqrt{x^2 - a^2} \right| + C' \quad (x > a \text{ or } x < -a)$