

## Some Important Indefinite Integrals (Section 5.3)

1.  $\int 0 \, dx = c$  where  $c$  is an arbitrary constant

2.  $\int k \, dx = kx + c$

3. **Power Rule:**  $\int x^n \, dx = \frac{x^{n+1}}{n+1} + c$ , where  $n \neq -1$

4.  $\int \frac{1}{x} \, dx = \ln |x| + c$

5.  $\int e^x \, dx = e^x + c$

6.  $\int a^x \, dx = \frac{a^x}{\ln a} + c$  for any real number  $a > 0$

7.  $\int \sin x \, dx = -\cos x + c$

8.  $\int \cos x \, dx = \sin x + c$

9.  $\int \sec^2 x \, dx = \tan x + c$

10.  $\int \csc^2 x \, dx = -\cot x + c$

11.  $\int \sec x \tan x \, dx = \sec x + c$

12.  $\int \csc x \cot x \, dx = -\csc x + c$

13.  $\int \frac{1}{1+x^2} \, dx = \tan^{-1} x + c$

14.  $\int \frac{1}{\sqrt{1-x^2}} \, dx = \sin^{-1} x + c$

15.  $\int -\frac{1}{\sqrt{1-x^2}} \, dx = \cos^{-1} x + c$

**Note:** To check a given formula, the derivative of the function on the right-hand side should be equal to the function being integrated (the integrand).