

Calculus/Integration/Exercises

Integration of Polynomials

Evaluate the following:

1. $\int (x^2 - 2)^2 dx$

2. $\int 8x^3 dx$

3. $\int (4x^2 + 11x^3) dx$

4. $\int (31x^{32} + 4x^3 - 9x^4) dx$

5. $\int 5x^{-2} dx$

Indefinite Integration

Find the general antiderivative of the following:

6. $\int (\cos(x) + \sin(x)) dx$

7. $\int 3 \sin(x) dx$

8. $\int (1 + \tan^2(x)) dx$

9. $\int (3x - \sec^2(x)) dx$

10. $\int -e^x dx$

11. $\int 8e^x dx$

12. $\int \frac{dx}{7x}$

13. $\int \frac{dx}{x^2 + a^2}$

Integration by parts

14. Consider the integral $\int \sin(x) \cos(x) dx$. Find the integral in two different ways. (a) Integrate by parts with $u = \sin(x)$ and $v' = \cos(x)$. (b) Integrate by parts with $u = \cos(x)$ and $v' = \sin(x)$. Compare your answers. Are they the same?

Retrieved from "<https://en.wikibooks.org/w/index.php?title=Calculus/Integration/Exercises&oldid=3261037>"

This page was last edited on 7 August 2017, at 21:34.

Text is available under the [Creative Commons Attribution-ShareAlike License](#).; additional terms may apply. By using this site, you agree to the [Terms of Use](#) and [Privacy Policy](#).