

# 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](#).