

The Fundamental Theorem of Calculus - Homework

Find the value of the definite integrals below. Confirm using your calculator.

$$1. \int_0^1 3x \, dx$$

$$2. \int_{-2}^3 (x-5) \, dx$$

$$3. \int_{-1}^4 (x^2 + 2x - 1) \, dx$$

$$4. \int_0^2 (2x-5)^2 \, dx$$

$$5. \int_2^3 \left(\frac{4}{x^2} + 1 \right) \, dx$$

$$6. \int_{-2}^{-1} \left(x - \frac{1}{x^2} \right) \, dx$$

$$7. \int_1^9 \frac{x-2}{\sqrt{x}} \, dx$$

$$8. \int_{-2}^2 \sqrt[3]{x} \, dx$$

$$9. \int_0^1 \left(t^{2/3} - t^{1/3} \right) \, dt$$

$$10. \int_0^3 |x-2| \, dx$$

$$11. \int_{-\pi/2}^{\pi/2} \cos x \, dx$$

$$12. \int_0^{\pi} (2x - \sin x) \, dx$$

$$13. \int_0^{\pi/2} (3 \sin x - 2 \cos x) \, dx$$

$$14. \int_0^{\pi/4} (x - \sec^2 x) \, dx$$

$$15. \int_0^{\pi/3} \sec \theta \tan \theta \, d\theta$$