

Evaluating Definite Integrals Algebraically

Evaluate each definite integral. Exponential and Logarithms: give exact value and also rounded value.

1) $\int_0^1 (-x^5 + 3x^3 - 2x + 2) dx$

2) $\int_{-2}^2 (x - 2) dx$

3) $\int_1^2 (x^4 - 3x^2 - x + 4) dx$

4) $\int_1^4 -4x^{\frac{1}{3}} dx$

5) $\int_{-1}^3 -2x^{\frac{1}{3}} dx$

6) $\int_{-4}^{-2} -\frac{1}{x^2} dx$

7) $\int_{-4}^{-2} -\frac{4}{x^3} dx$

8) $\int_{-3}^{-1} \frac{5}{x} dx$

9) $\int_{-2}^{-1} -\frac{2}{x} dx$

10) $\int_{-2}^1 e^x dx$

11) $\int_{-3}^0 -2e^x dx$

12) $\int_{-\frac{3\pi}{4}}^{-\frac{2\pi}{3}} -2\csc^2 x dx$

13) $\int_{-\frac{\pi}{4}}^{\frac{\pi}{6}} 2\sec^2 x dx$

14) $\int_{-\frac{3\pi}{4}}^{\frac{\pi}{6}} 2\cos x dx$

15) $\int_{-\frac{\pi}{4}}^{-\frac{\pi}{6}} -2\sec x \tan x dx$

16) $\int_{\frac{\pi}{4}}^{\frac{\pi}{2}} -2\csc x \cot x dx$

17) $\int_{-\frac{\pi}{2}}^{-\frac{\pi}{3}} \sin x dx$

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

19) $\int_{-4}^0 -4(x + 2)^{\frac{1}{3}} dx$

20) $\int_{-1}^1 \frac{1}{(2x + 6)^2} dx$

21) $\int_{-3}^{-1} \frac{4}{x - 1} dx$

22) $\int_4^6 -\frac{5}{2x - 4} dx$

23) $\int_{-6}^{-3} 3e^{2x+6} dx$

24) $\int_2^3 -2e^{x-3} dx$

Evaluating Definite Integrals Algebraically

Evaluate each definite integral. Exponential and Logarithms: give exact value and also rounded value.

$$1) \int_0^1 (-x^5 + 3x^3 - 2x + 2) dx \quad \frac{19}{12} \approx 1.583$$

$$2) \int_{-2}^2 (x - 2) dx \quad -8$$

$$3) \int_1^2 (x^4 - 3x^2 - x + 4) dx \quad \frac{17}{10} = 1.7$$

$$4) \int_1^4 -4x^{\frac{1}{3}} dx \quad -12\sqrt[3]{4} + 3 \approx -16.049$$

$$5) \int_{-1}^3 -2x^{\frac{1}{3}} dx \quad \frac{-9\sqrt[3]{3} + 3}{2} \approx -4.99$$

$$6) \int_{-4}^{-2} -\frac{1}{x^2} dx \quad -\frac{1}{4} = -0.25$$

$$7) \int_{-4}^{-2} -\frac{4}{x^3} dx \quad \frac{3}{8} = 0.375$$

$$8) \int_{-3}^{-1} \frac{5}{x} dx \quad -5 \ln 3 \approx -5.493$$

$$9) \int_{-2}^{-1} -\frac{2}{x} dx \quad 2 \ln 2 \approx 1.386$$

$$10) \int_{-2}^1 e^x dx \quad \frac{e^3 - 1}{e^2} \approx 2.583$$

$$11) \int_{-3}^0 -2e^x dx \quad \frac{-2e^3 + 2}{e^3} \approx -1.9$$

$$12) \int_{-\frac{3\pi}{4}}^{-\frac{2\pi}{3}} -2\csc^2 x dx \quad \frac{-6 + 2\sqrt{3}}{3} \approx -0.845$$

$$13) \int_{-\frac{\pi}{4}}^{\frac{\pi}{6}} 2\sec^2 x dx \quad \frac{6 + 2\sqrt{3}}{3} \approx 3.155$$

$$14) \int_{-\frac{3\pi}{4}}^{\frac{\pi}{6}} 2\cos x dx \quad 1 + \sqrt{2} \approx 2.414$$

$$15) \int_{-\frac{\pi}{4}}^{-\frac{\pi}{6}} -2\sec x \tan x dx \quad \frac{6\sqrt{2} - 4\sqrt{3}}{3} \approx 0.519$$

$$16) \int_{\frac{\pi}{4}}^{\frac{\pi}{2}} -2\csc x \cot x dx \quad 2 - 2\sqrt{2} \approx -0.828$$

$$17) \int_{-\frac{\pi}{2}}^{-\frac{\pi}{3}} \sin x dx \quad -\frac{1}{2} = -0.5$$

$$18) \int_{-2}^3 -3(2x + 4)^{\frac{1}{3}} dx \quad -\frac{45\sqrt[3]{10}}{4} \approx -24.237$$

$$19) \int_{-4}^0 -4(x + 2)^{\frac{1}{3}} dx \quad 0$$

$$20) \int_{-1}^1 \frac{1}{(2x + 6)^2} dx \quad \frac{1}{16} \approx 0.063$$

$$21) \int_{-3}^{-1} \frac{4}{x - 1} dx \quad 4 \ln 2 - 4 \ln 4 \approx -2.773$$

$$22) \int_4^6 -\frac{5}{2x - 4} dx \quad \frac{-5 \ln 8 + 5 \ln 4}{2} \approx -1.733$$

$$23) \int_{-6}^{-3} 3e^{2x+6} dx \quad \frac{3e^6 - 3}{2e^6} \approx 1.496$$

$$24) \int_2^3 -2e^{x-3} dx \quad \frac{-2e + 2}{e} \approx -1.264$$