

Calculus Practice: First Fundamental Theorem of Calculus 2a

Evaluate each definite integral.

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

A) $\frac{15 - 30\sqrt[3]{2}}{4} \approx -5.699$

B) $-5 + 11\sqrt[3]{7} \approx 16.042$

C) $\frac{17 - 22\sqrt[3]{2}}{4} \approx -2.68$

D) $12 - 30\sqrt[3]{2} \approx -25.798$

2) $\int_{-3}^0 2x^{\frac{1}{3}} dx$

A) $-\frac{9\sqrt[3]{7}}{2} \approx -8.608$

B) $3\sqrt[3]{3} \approx 4.327$

C) $-\frac{9\sqrt[3]{5}}{8} \approx -1.924$

D) $-\frac{9\sqrt[3]{3}}{2} \approx -6.49$

3) $\int_{-7}^{-4} -x^{\frac{1}{3}} dx$

A) $\frac{-4\sqrt[3]{4} + 27\sqrt[3]{2}}{4} \approx 6.917$

B) $\frac{-12\sqrt[3]{4} + 21\sqrt[3]{15}}{4} \approx 8.185$

C) $\frac{-8\sqrt[3]{4} + 21}{4} \approx 2.075$

D) $\frac{-12\sqrt[3]{4} + 21\sqrt[3]{7}}{4} \approx 5.281$

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

A) $\frac{27}{4} = 6.75$

B) $\frac{39\sqrt[3]{4} - 9}{4} \approx 13.227$

C) $\frac{36\sqrt[3]{4} - 9}{4} \approx 12.037$

D) $\frac{39}{4} = 9.75$

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

A) $22\sqrt[3]{4} - 3 \approx 31.923$

B) $12\sqrt[3]{12} - 11 \approx 16.473$

C) $12\sqrt[3]{4} - 3 \approx 16.049$

D) $3\sqrt[3]{4} - 3 \approx 1.762$

6) $\int_{-6}^{-3} x^{\frac{1}{3}} dx$

A) $-\frac{17\sqrt[3]{3}}{4} \approx -6.13$

B) $\frac{9\sqrt[3]{3} - 18\sqrt[3]{6}}{4} \approx -4.932$

C) $-\frac{9\sqrt[3]{3}}{5} \approx -2.596$

D) $\frac{9\sqrt[3]{3} - 22\sqrt[3]{12}}{9} \approx -4.154$

7) $\int_1^2 \frac{5}{x^2} dx$

- A) $\frac{5}{2} = 2.5$ B) $\frac{5}{12} \approx 0.417$
C) -5 D) $-\frac{3}{2} = -1.5$

8) $\int_2^3 \frac{4}{x^3} dx$

- A) $\frac{1}{10} = 0.1$ B) $\frac{5}{18} \approx 0.278$
C) $\frac{5}{24} \approx 0.208$ D) $\frac{1}{3} \approx 0.333$

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

- A) 2 B) 7
C) 1 D) -5

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

- A) $\ln 2 + 3 \ln 3 \approx 3.989$
B) 0
C) $\ln 8 - 5 \ln 3 \approx -3.414$
D) $\ln 2 - \ln 3 \approx -0.405$

11) $\int_{-1}^0 3e^x dx$

- A) $\frac{3e-3}{2e} \approx 0.948$
B) $\frac{-3e-5}{4e} \approx -1.21$
C) $\frac{-3e+1}{8e} \approx -0.329$
D) $\frac{3e-3}{e} \approx 1.896$

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

- A) $\frac{2e^3-2}{7e^2} \approx 0.738$
B) $\frac{-2e^3+2}{e^2} \approx -5.166$
C) $\frac{-2e^3+1}{e^2} \approx -5.301$
D) $\frac{-2e^3+3}{e^2} \approx -5.031$

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

- A) $\frac{2e^3-2}{e^2} \approx 5.166$
B) $\frac{2e^3+8}{e^2} \approx 6.519$
C) $\frac{12e^3-6}{e^2} \approx 31.807$
D) $\frac{2e^3-2}{3e^2} \approx 1.722$

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

- A) $\frac{e^3-6}{e^3} \approx 0.701$
B) $\frac{-e^3+1}{5e^3} \approx -0.19$
C) $\frac{e^3-1}{e^3} \approx 0.95$
D) $\frac{e^3-5}{e^3} \approx 0.751$

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