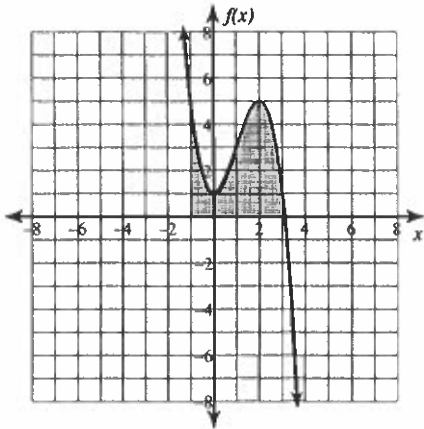


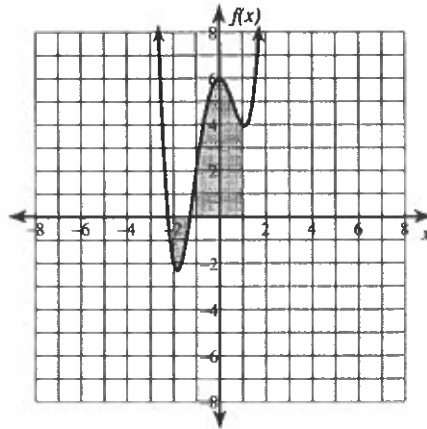
Fundamental Theorem of Calculus

Evaluate each definite integral.

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



2) $\int_{-2}^1 (x^4 + x^3 - 4x^2 + 6) dx$



3) $\int_1^3 (2x^2 - 12x + 13) dx$

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

5) $\int_{-1}^0 (x^5 - 4x^3 + 4x + 4) dx$

6) $\int_{-3}^0 4x^{\frac{1}{3}} dx$

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

$$8) \int_{-3}^{-1} \frac{4}{x} dx$$

$$9) \int_{-\frac{\pi}{4}}^{-\frac{\pi}{6}} 2\cos x dx$$

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

$$11) \int_{-3}^{-2} 5(2x+4)^{\frac{1}{3}} dx$$

$$12) \int_{-1}^2 \frac{2}{(2x+4)^3} dx$$

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

$$14) \int_{-4}^{-2} (-x + |-3x-9|) dx$$

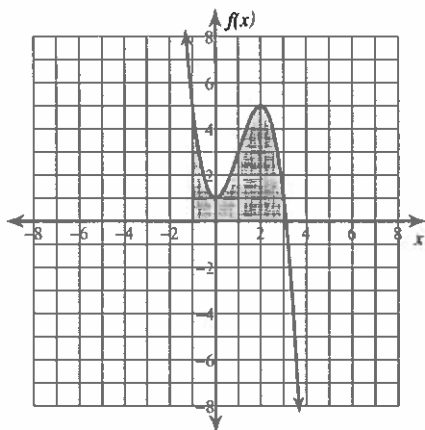
$$15) \int_0^3 f(x) dx, f(x) = \begin{cases} \frac{x}{2} - 1, & x \leq 2 \\ x^2 - 6x + 8, & x > 2 \end{cases}$$

$$16) \int_{-5}^1 -|x^2 + 4x| dx$$

Fundamental Theorem of Calculus

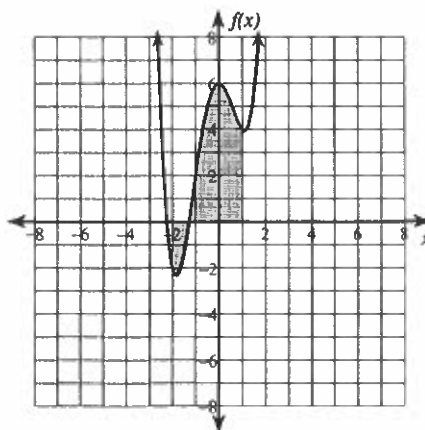
Evaluate each definite integral.

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



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2) $\int_{-2}^1 (x^4 + x^3 - 4x^2 + 6) dx$



$$\frac{177}{20} = 8.85$$

3) $\int_1^3 (2x^2 - 12x + 13) dx$

$$-\frac{14}{3} \approx -4.667$$

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

$$\frac{3}{4} = 0.75$$

5) $\int_{-1}^0 (x^5 - 4x^3 + 4x + 4) dx$

$$\frac{17}{6} \approx 2.833$$

6) $\int_{-3}^0 \frac{1}{4x^3} dx$

$$-9\sqrt[3]{3} \approx -12.98$$

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

$$\frac{15}{8} = 1.875$$

$$8) \int_{-3}^{-1} \frac{4}{x} dx$$

$$-4 \ln 3 \approx -4.394$$

$$9) \int_{-\frac{\pi}{4}}^{-\frac{\pi}{6}} 2 \cos x dx$$

$$-1 + \sqrt{2} \approx 0.414$$

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

$$\frac{\pi}{12} \approx 0.262$$

$$11) \int_{-3}^{-2} 5(2x+4)^{\frac{1}{3}} dx$$

$$-\frac{15\sqrt[3]{2}}{4} \approx -4.725$$

$$12) \int_{-1}^2 \frac{2}{(2x+4)^3} dx$$

$$\frac{15}{128} \approx 0.117$$

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

$$\frac{e^4 - 1}{2e^4} \approx 0.491$$

$$14) \int_{-4}^{-2} (-x + |-3x - 9|) dx$$

$$9$$

$$15) \int_0^3 f(x) dx, f(x) = \begin{cases} \frac{x}{2} - 1, & x \leq 2 \\ x^2 - 6x + 8, & x > 2 \end{cases}$$

$$-\frac{5}{3} \approx -1.667$$

$$16) \int_{-5}^1 -|x^2 + 4x| dx$$

$$-\frac{46}{3} \approx -15.333$$