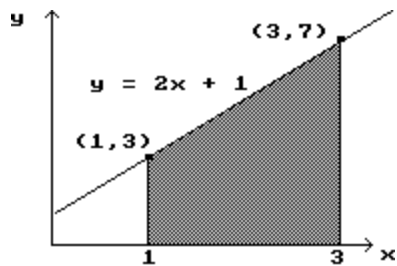


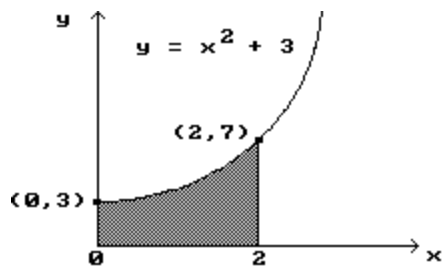
Find the shaded area under the given curve.

Also, for problems 2, 3, and 4, ESTIMATE the area under the given curves by partitioning the given interval into 4 subintervals. Use the midpoints of the intervals in each case.

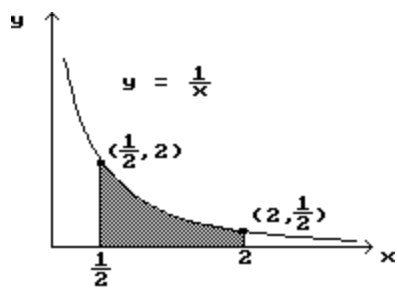
1)



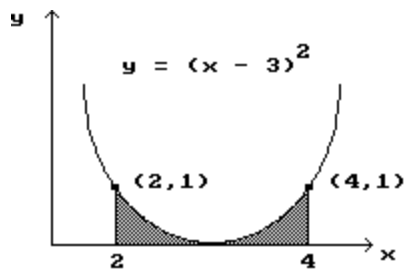
2)



3)

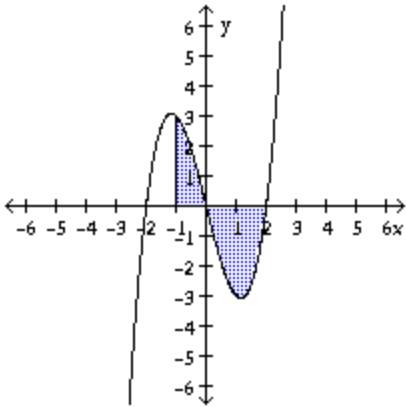


4)



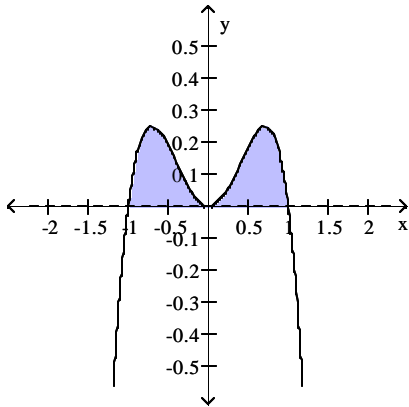
Evaluate the definite integral and interpret the result.

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



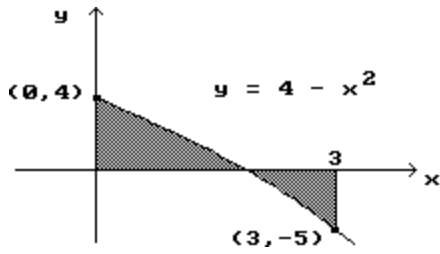
- A) $-\frac{9}{4}$; The area between the x-axis and the graph of $y = x^3 - 4x$ over the interval $[-1, 0]$ minus the area between the x-axis and the graph of $y = x^3 - 4x$ over the interval $[0, 2]$ is $-\frac{9}{4}$.
- B) 9; The area under the graph of $y = x^3 - 4x$ over the interval $[-1, 2]$ is 9.
- C) 3; The area between the x-axis and the graph of $y = x^3 - 4x$ over the interval $[-1, 0]$ minus the area between the x-axis and the graph of $y = x^3 - 4x$ over the interval $[0, 2]$ is 3.
- D) $-\frac{9}{4}$; The area between the x-axis and the graph of $y = x^3 - 4x$ over the interval $[-1, 2]$ is $-\frac{9}{4}$.

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



- A) $\frac{2}{15}$; The area bounded by the x-axis and the graph of $y = x^2 - x^4$ is $\frac{2}{15}$.
- B) $\frac{4}{15}$; The area bounded by the x-axis and the graph of $y = x^2 - x^4$ is $\frac{4}{15}$.
- C) $\frac{2}{15}$; The area bounded by the x-axis and the graph of $y = x^2 - x^4$ is $\frac{2}{15}$.
- D) $\frac{1}{15}$; The area bounded by the x-axis and the graph of $y = x^2 - x^4$ is $\frac{1}{15}$.

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



- A) 3; The shaded area above the x-axis minus the shaded area below the x-axis is equal to 3.
 B) 5; The total shaded area is equal to 5.
 C) $\frac{23}{3}$; The shaded area above the x-axis minus the shaded area below the x-axis is equal to $\frac{23}{3}$.
 D) $\frac{23}{3}$; The total shaded area is equal to $\frac{23}{3}$.

Evaluate.

8) $\int_{-2}^5 4x^3 dx$

- A) 2436 B) 609 C) 21 D) -609

9) $\int_0^4 2\sqrt{x} dx$

- A) 16 B) 4 C) 24 D) $\frac{32}{3}$

10) $\int_1^e \left(12x - \frac{9}{x}\right) dx$

- A) $12e^2 - 9$ B) $6e^2 - 6$ C) $6e^2 - 15$ D) $6e^2 - 9$

11) $\int_0^1 \frac{3}{10}x^2 dx$

- A) $\frac{3}{5}$ B) $\frac{3}{10}$ C) $-\frac{1}{10}$ D) $\frac{1}{10}$

12) $\int_1^e \frac{3}{x} dx$

- A) 3 B) 0 C) -3 D) $-\frac{3}{2}e^2$

Find the total area of the region between the curve and the x-axis.

13) $y = 2x + 7$; $[1, 5]$

A) 26

B) 52

C) 9

D) 18

14) $y = x^2 - 6x + 9$; $[2, 4]$

A) $\frac{4}{3}$

B) $\frac{2}{3}$

C) $\frac{7}{3}$

D) $\frac{1}{3}$

15) $y = 2x - x^2$; $[0, 2]$

A) $\frac{2}{3}$

B) $\frac{4}{3}$

C) $\frac{7}{3}$

D) $\frac{5}{3}$

16) $y = \frac{3}{x^3}$; $[1, 3]$

A) $\frac{1}{3}$

B) 3

C) $\frac{1}{2}$

D) $\frac{4}{3}$

Use the numeric integration feature on your calculator to find the integral.

17) $\int_1^3 \ln(t) dt$

A) 2.29584

C) 1.29584

B) None of the above is correct.

D) 0.29584

18) $\int_2^4 e^{-t^2} dt$

A) 0.05048

B) 0.00248

C) 0.88623

D) 0.00415

19) $\int_1^6 t \ln(t) dt$

A) None of the above is correct.

C) 23.50167

B) 0.50167

D) 2.350167

20) $\int_3^5 \frac{dx}{\sqrt{x^2+10}}$

A) 0.3943

B) 0.1569

C) 0.0157

D) 0.3055

Answer Key

Testname: 6-2-3

- 1) 10
- 2) $\frac{26}{3}$
- 3) 1.39
- 4) $\frac{2}{3}$
- 5) A
- 6) B
- 7) A
- 8) B
- 9) D
- 10) C
- 11) D
- 12) A
- 13) B
- 14) B
- 15) B
- 16) D
- 17) C
- 18) D
- 19) C
- 20) A