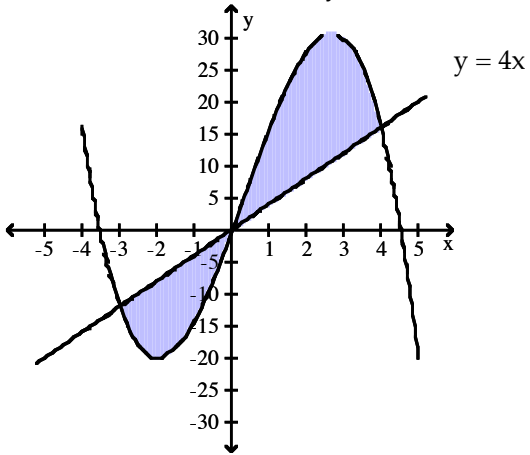


Name _____

Find the area of the shaded region.

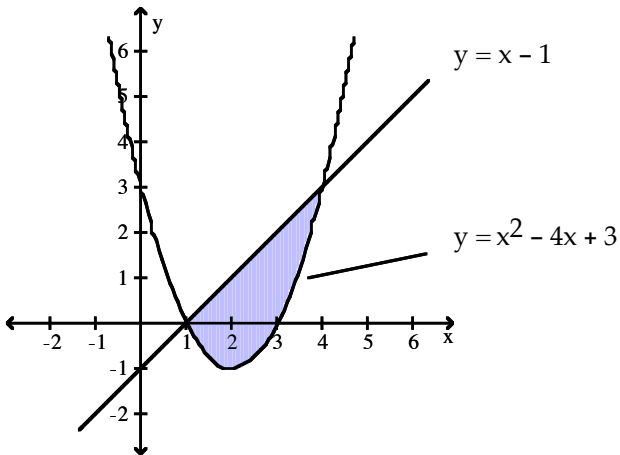
1) $y = -x^3 + x^2 + 16x$

1) _____

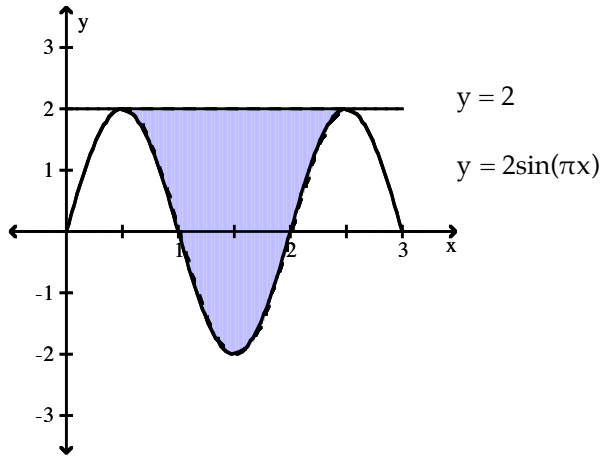


2)

2) _____



3)



3) _____

Calculate the area of the region bounded by the graphs of the given equations.

4) $y = x^3$, $y = 9x$

4) _____

5) $y = x^3$, $y = x^2$

5) _____

6) $x = 0$, $x = 1$, $y = x^2 + 6$, $y = x^2 + 2$

6) _____

7) $x = (y - 3)^4$, $x = (y - 5)^2$

7) _____

Find the volume of the solid generated by revolving the region R bounded by the graphs of the given equations about the x-axis.

8) $y = x$, $y = 0$, between $x = 1$ and $x = 5$

8) _____

Find the volume of the solid generated by revolving the region R bounded by the graphs of the given equations about the y-axis.

9) $y^2 = x$, $y = 3$, $x = 0$

9) _____

10) $x = \frac{4}{y}$, $x = 0$, between $y = 1$ and $y = 6$

10) _____

Find the volume of the solid generated by revolving the region R bounded by the graphs of the given equations about the x-axis.

11) $y = -6x + 12$, $y = 6x$, $x = 0$

11) _____

12) $y = 2 \csc x$, $y = 2\sqrt{2}$, between $x = \frac{\pi}{4}$ and $x = \frac{3\pi}{4}$

12) _____

Find the volume of the solid generated by revolving the region R bounded by the graphs of the given equations about the y-axis.

13) bounded by $y = x^3$, by the line $x = 3$, and by the x-axis

13) _____

Find the volume of the solid generated by revolving the region about the given line.

14) The region in the first quadrant bounded by the line $5x + y = 10$, by the x-axis, and by the y-axis, about the line $x = -2$.

14) _____

15) The region in the first quadrant bounded by the line $y = 3x^3$, by x-axis, and by the line $x = 1$, about the line $y = -1$.

15) _____

- 16) The region in the first quadrant bounded by the line $y = 3$, by the curve $y = \sqrt{3x}$, and by the y -axis, about the line $y = 3$. 16) _____

Use the shell method to find the volume of the solid generated by revolving the region bounded by the given curves and lines about the y -axis.

17) $y = 4x^2, y = 0, x = 4$ 17) _____

18) $y = 9x^2, y = 9\sqrt{x}$ 18) _____

19) $y = 8 - x^2, y = x^2, x = 0$ 19) _____

Find the volume of the solid generated by revolving the region bounded by the given curves about the x -axis.

20) $x = 5\sqrt{y}, x = -5y, y = 1$ 20) _____

21) $x = 3y^2, x = -3y, y = 3$ 21) _____

22) $y = 7x, y = 14x, y = 7$ 22) _____

Find the volume of the solid generated by revolving the region about the given line.

23) The region bounded above by the line $y = 25$, below by the curve $y = 25 - x^2$, and on the right by the line $x = 5$, about the line $y = 25$ 23) _____

- 24) The region in the first quadrant bounded above by the line $y = 3$, below by the curve $y = \sqrt{3x}$, and on the left by the y -axis, about the line $x = -1$ 24) _____

Solve the problem.

- 25) The spring of a spring balance is 6.0 in. long when there is no weight on the balance, and it is 8.5 in. long with 9.0 lb hung from the balance. How much work is done in stretching it from 6.0 in. to a length of 13.7 in.? 25) _____

- 26) A force of 1300 lb compresses a spring from its natural length of 20 in. to a length of 12 in. How much work is done in compressing it from 12 in. to 8 in.? 26) _____

Find the average value over the given interval.

- 27) $f(x) = \frac{11}{x}$; $[1, e]$ 27) _____

- 28) $f(x) = x^2 - 5x + 5$; $[0, 8]$ 28) _____

- 29) $f(x) = 10 \sin x$; $[0, \pi]$ 29) _____

- 30) $f(x) = \sec x \tan x$; $[0, \frac{\pi}{3}]$ 30) _____

Answer Key

Testname: HW_CH6

1) $\frac{937}{12}$

Objective: (6.1) Find Area of Shaded Region

2) $\frac{9}{2}$

Objective: (6.1) Find Area of Shaded Region

3) 4

Objective: (6.1) Find Area of Shaded Region

4) $\frac{81}{2}$

Objective: (6.1) Find Area Bounded by Curves I

5) $\frac{1}{12}$

Objective: (6.1) Find Area Bounded by Curves I

6) 4

Objective: (6.1) Find Area Bounded by Curves II

7) $\frac{72}{5}$

Objective: (6.1) Find Area Bounded by Curves III

8) $\frac{124}{3}\pi$

Objective: (6.2) Find Volume: Revolution About x-Axis (Disk Sections)

9) $\frac{243}{5}\pi$

Objective: (6.2) Find Volume: Revolution About y-Axis (Disk Sections)

10) $\frac{40}{3}\pi$

Objective: (6.2) Find Volume: Revolution About y-Axis (Disk Sections)

11) 72π

Objective: (6.2) Find Volume: Revolution About x-Axis (Washer Sections)

12) $4\pi^2 - 8\pi$

Objective: (6.2) Find Volume: Revolution About x-Axis (Washer Sections)

13) $\frac{486}{5}\pi$

Objective: (6.2) Find Volume: Revolution About y-Axis (Washer Sections)

14) $\frac{160}{3}\pi$

Objective: (6.2) Find Volume: Revolution About Line (Disk/Washer Sections)

15) $\frac{39}{14}\pi$

Objective: (6.2) Find Volume: Revolution About Line (Disk/Washer Sections)

Answer Key

Testname: HW_CH6

16) $\frac{9}{2}\pi$

Objective: (6.2) Find Volume: Revolution About Line (Disk/Washer Sections)

17) 512π

Objective: (6.3) Find Volume: Revolution about y-Axis

18) $\frac{27}{10}\pi$

Objective: (6.3) Find Volume: Revolution about y-Axis

19) 16π

Objective: (6.3) Find Volume: Revolution about y-Axis

20) $\frac{22}{3}\pi$

Objective: (6.3) Find Volume: Revolution about x-Axis

21) $\frac{351}{2}\pi$

Objective: (6.3) Find Volume: Revolution about x-Axis

22) $\frac{49}{3}\pi$

Objective: (6.3) Find Volume: Revolution about x-Axis

23) 625π

Objective: (6.3) Find Volume: Revolution about Line

24) $\frac{57}{5}\pi$

Objective: (6.3) Find Volume: Revolution about Line

25) 110 in.-lb

Objective: (6.5) Solve Apps: Springs

26) 6500 in.-lb

Objective: (6.5) Solve Apps: Springs

27) $\frac{11}{e-1}$

Objective: (5.5) Find Average Value of Function

28) $\frac{19}{3}$

Objective: (5.5) Find Average Value of Function

29) $\frac{20}{\pi}$

Objective: (5.5) Find Average Value of Function

30) $\frac{3}{\pi}$

Objective: (5.5) Find Average Value of Function