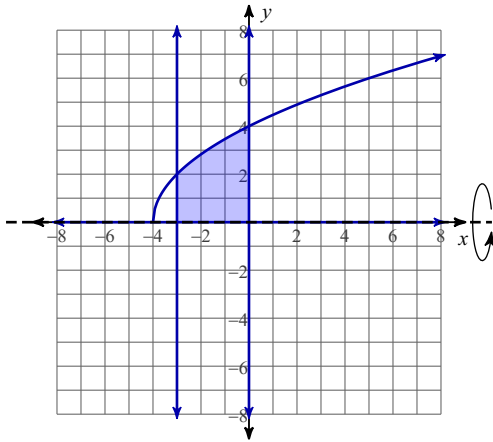
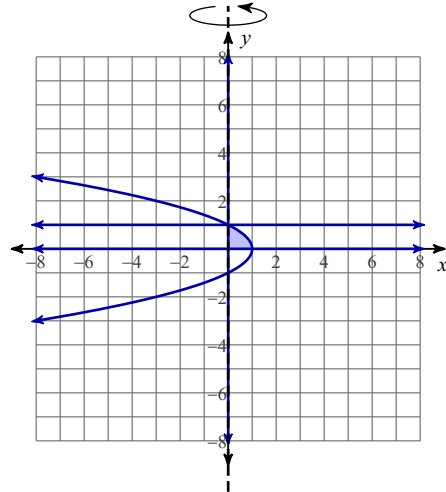


For each problem, find the volume of the solid that results when the region enclosed by the curves is revolved about the the given axis. Set up, but do not evaluate the integral.

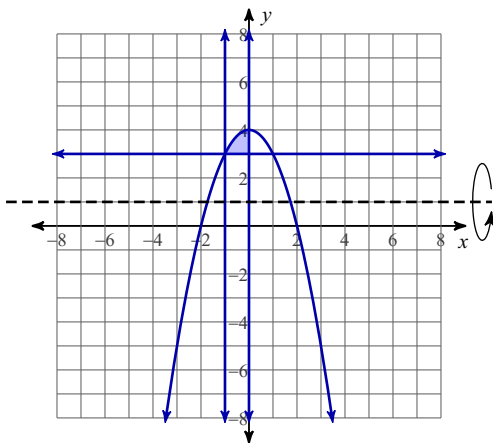
1)  $y = 2\sqrt{x+4}$ ,  $y = 0$ ,  $x = -3$ ,  $x = 0$   
 Axis:  $y = 0$



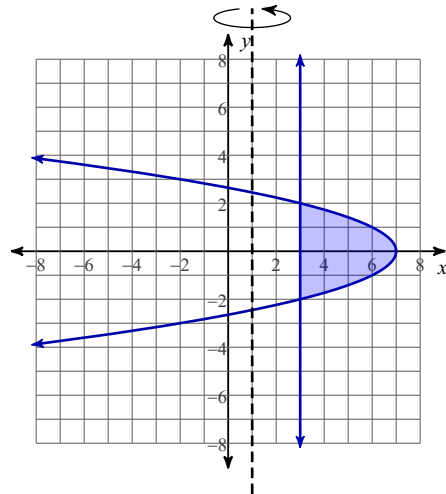
2)  $x = -y^2 + 1$ ,  $x = 0$ ,  $y = 0$ ,  $y = 1$   
 Axis:  $x = 0$



3)  $y = -x^2 + 4$ ,  $y = 3$ ,  $x = -1$ ,  $x = 0$   
 Axis:  $y = 1$

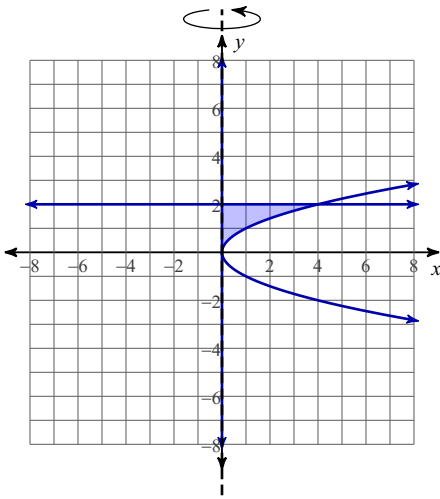


4)  $x = -y^2 + 7$ ,  $x = 3$   
 Axis:  $x = 1$

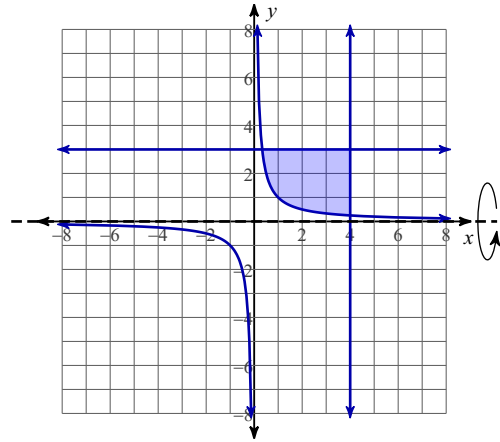


For each problem, find the volume of the solid that results when the region enclosed by the curves is revolved about the given axis.

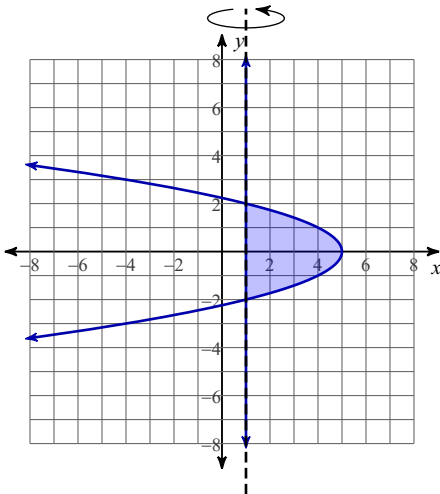
5)  $x = y^2$ ,  $x = 0$ ,  $y = 2$   
 Axis:  $x = 0$



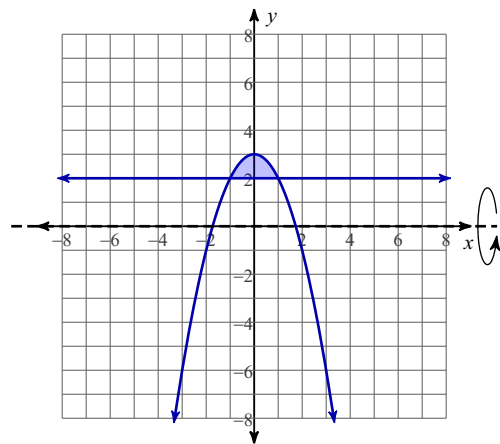
6)  $y = 3$ ,  $y = \frac{1}{x}$ ,  $x = 4$   
 Axis:  $y = 0$



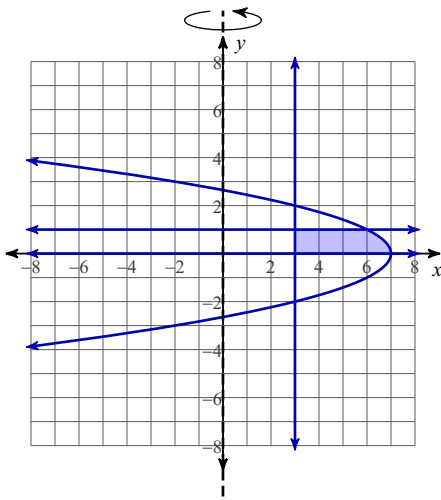
7)  $x = -y^2 + 5$ ,  $x = 1$   
 Axis:  $x = 1$



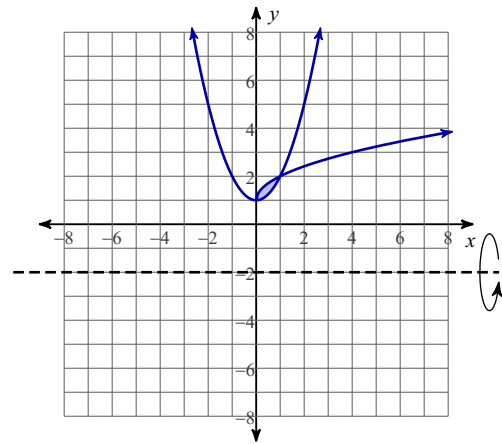
8)  $y = -x^2 + 3$ ,  $y = 2$   
 Axis:  $y = 0$



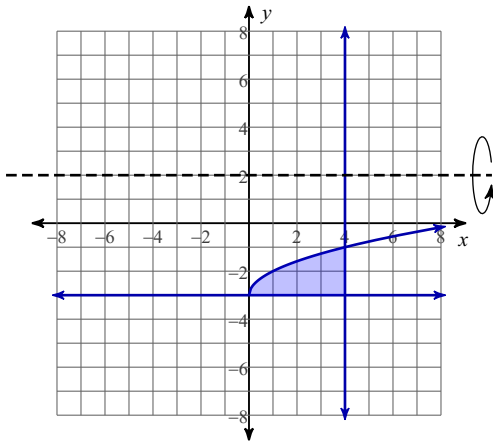
9)  $x = -y^2 + 7$ ,  $x = 3$ ,  $y = 0$ ,  $y = 1$   
 Axis:  $x = 0$



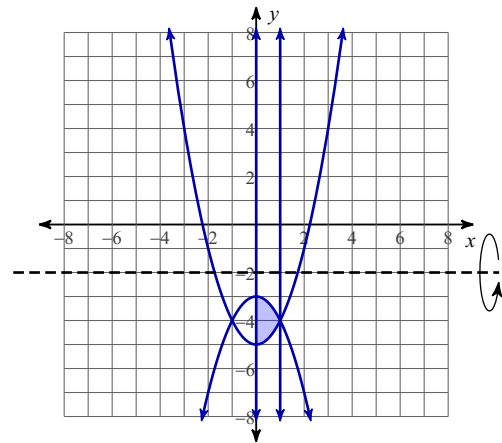
10)  $y = \sqrt{x} + 1$ ,  $y = x^2 + 1$   
 Axis:  $y = -2$



11)  $y = -3$ ,  $y = \sqrt{x} - 3$ ,  $x = 4$   
 Axis:  $y = 2$



12)  $y = x^2 - 5$ ,  $y = -x^2 - 3$ ,  $x = 0$ ,  $x = 1$   
 Axis:  $y = -2$



## Answers to

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

2)  $\pi \int_0^1 (-y^2 + 1)^2 dy$

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

4)  $\pi \int_{-2}^2 ((-y^2 + 6)^2 - 2^2) dy$

5)  $\frac{32}{5}\pi \approx 20.106$

6)  $\frac{121}{4}\pi \approx 95.033$

7)  $\frac{512}{15}\pi \approx 107.233$

8)  $\frac{32}{5}\pi \approx 20.106$

9)  $\frac{533}{15}\pi \approx 111.631$

10)  $\frac{23}{10}\pi \approx 7.226$

11)  $\frac{136}{3}\pi \approx 142.419$

12)  $\frac{16}{3}\pi \approx 16.755$