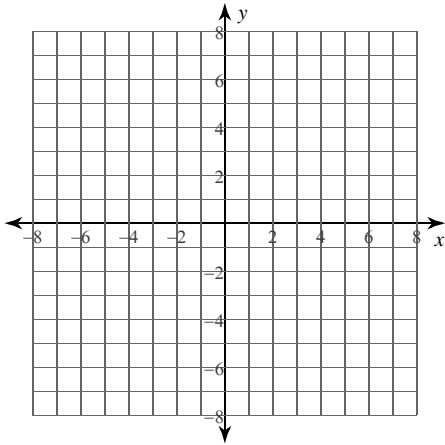


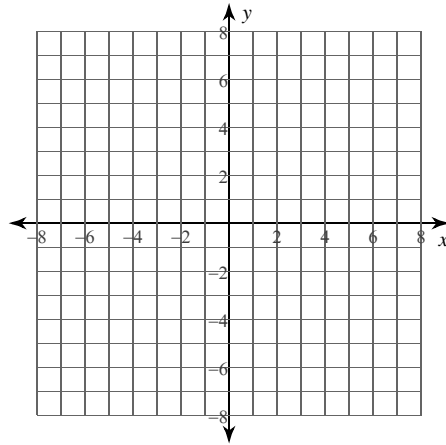
Calculus Practice: Using Definite Integrals to Calculate Volume 7b

For each problem, find the volume of the solid that results when the region enclosed by the curves is revolved about the given axis. You may use the provided graph to sketch the curves and shade the enclosed region.

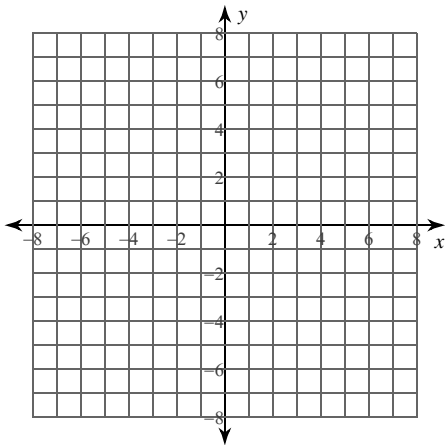
1) $y = x^2 + 3$, $y = 1$, $x = -2$, $x = 0$
Axis: $y = -2$



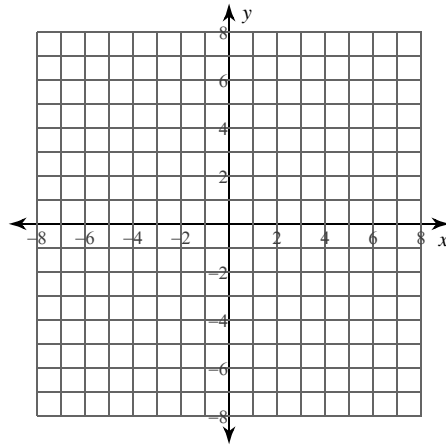
2) $y = 2x$, $y = x^2$
Axis: $y = -2$



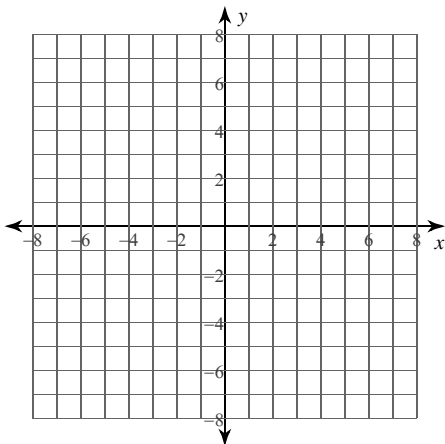
3) $y = x^2$, $y = 0$, $x = 2$
Axis: $y = -1$



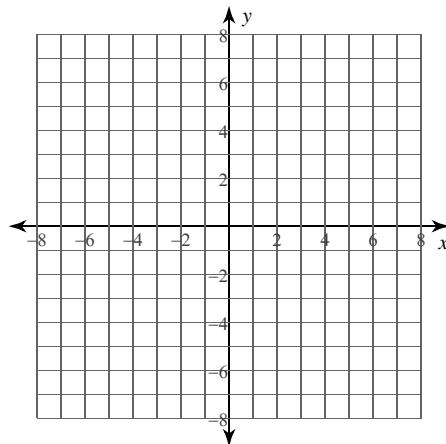
4) $y = \sqrt{x} + 1$, $y = 1$, $x = 1$
Axis: $y = -1$



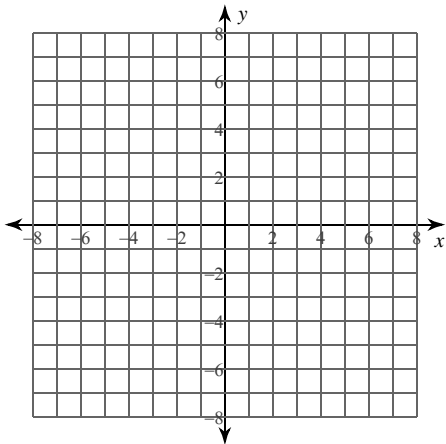
5) $y = x^2 + 2$, $y = 1$, $x = -1$, $x = 1$
Axis: $y = -1$



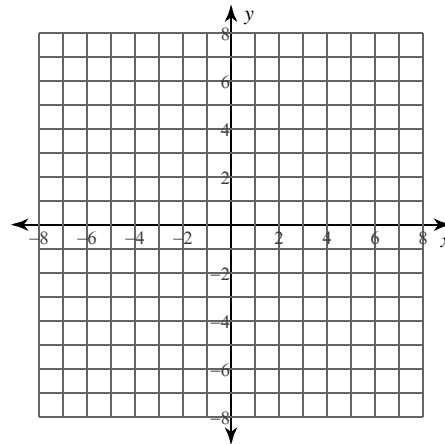
6) $y = x^2 - 4$, $y = -x^2 - 2$, $x = 0$, $x = 1$
Axis: $y = -1$



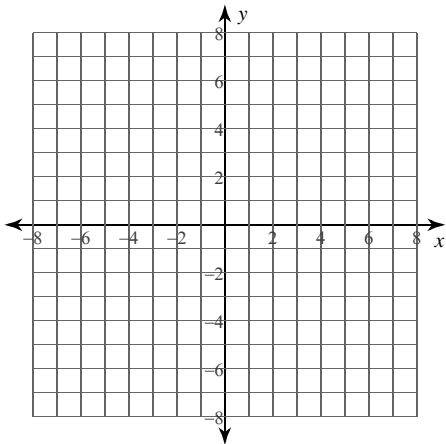
7) $x = y^2 - 6$, $x = -y^2 - 4$, $y = 0$, $y = 1$
 Axis: $x = -1$



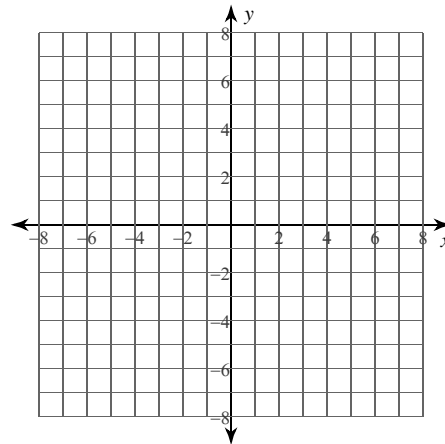
8) $x = -y^2$, $x = -1$, $y = -1$, $y = 0$
 Axis: $x = -2$



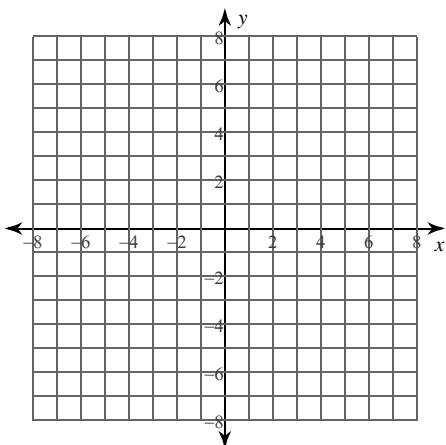
9) $x = \frac{y}{2} - 2$, $x = \sqrt{y} - 2$
 Axis: $x = 2$



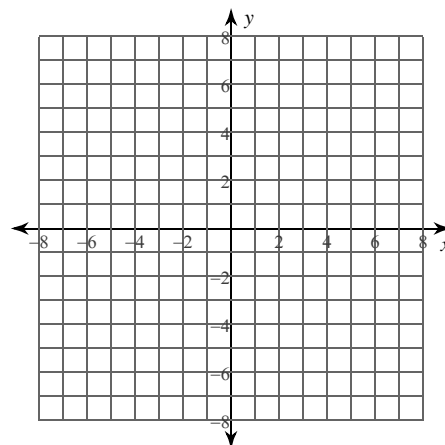
10) $x = \sqrt{y} - 1$, $x = \frac{y}{2} - 1$
 Axis: $x = -1$



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



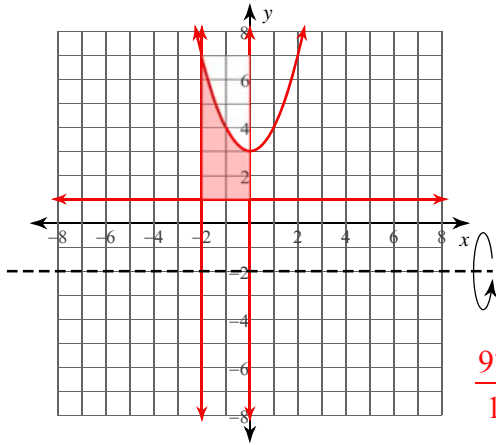
12) $x = -y^2 + 5$, $x = 1$, $y = 0$, $y = 2$
 Axis: $x = -1$



Calculus Practice: Using Definite Integrals to Calculate Volume 7b

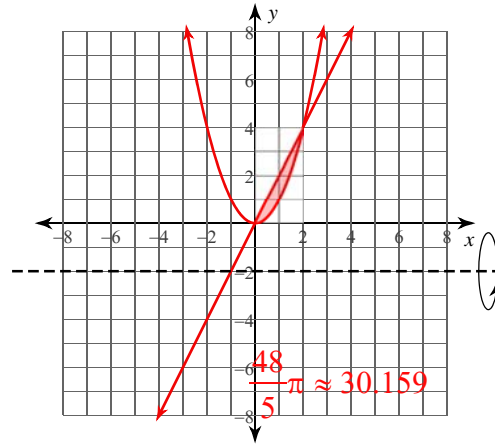
For each problem, find the volume of the solid that results when the region enclosed by the curves is revolved about the given axis. You may use the provided graph to sketch the curves and shade the enclosed region.

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



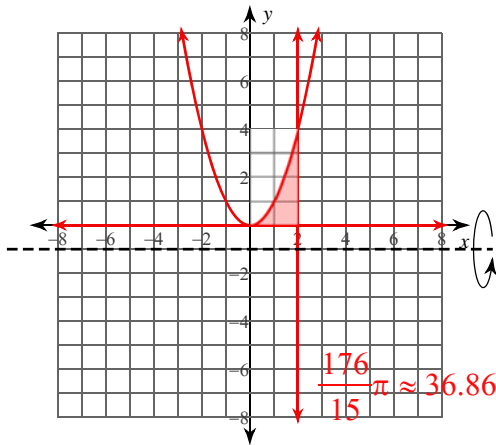
$$\frac{976}{15}\pi \approx 204.413$$

- 2) $y = 2x$, $y = x^2$
Axis: $y = -2$



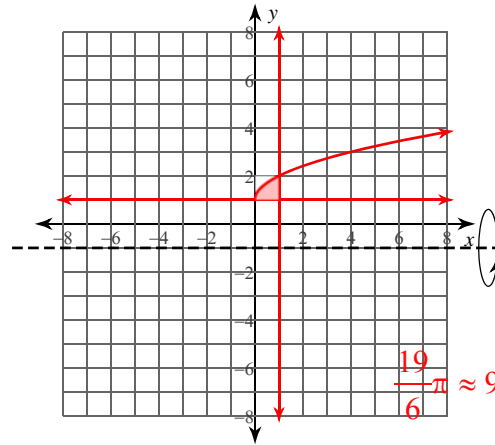
$$\frac{48}{5}\pi \approx 30.159$$

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



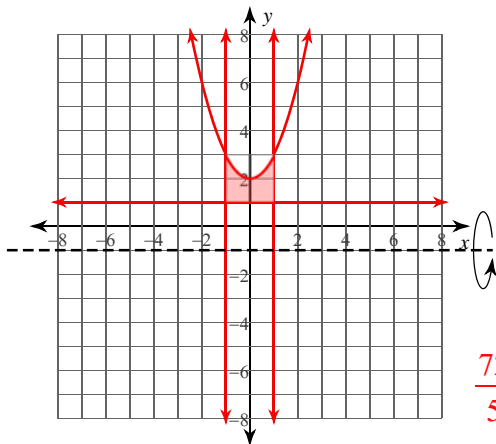
$$\frac{176}{15}\pi \approx 36.861$$

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



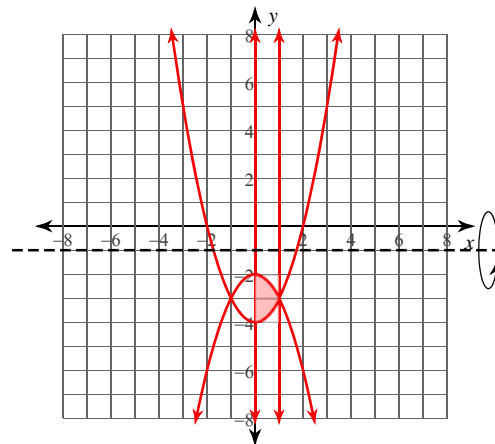
$$\frac{19}{6}\pi \approx 9.948$$

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



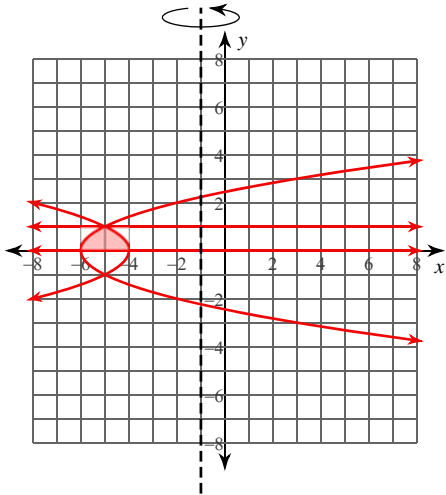
$$\frac{72}{5}\pi \approx 45.239$$

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



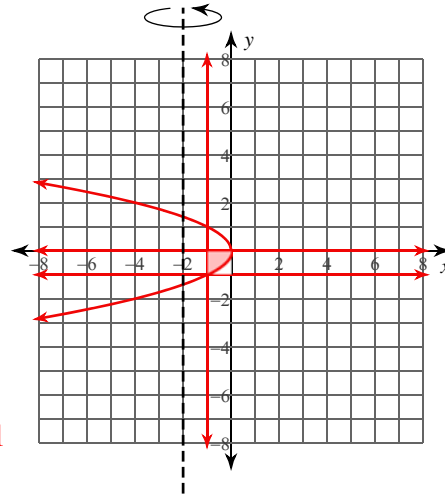
$$\frac{16}{3}\pi \approx 16.755$$

7) $x = y^2 - 6$, $x = -y^2 - 4$, $y = 0$, $y = 1$
Axis: $x = -1$



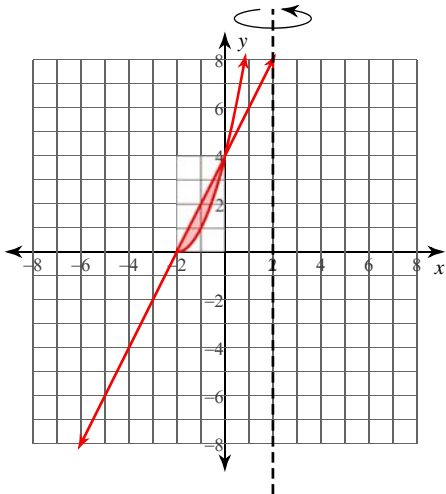
$$\frac{32}{3}\pi \approx 33.51$$

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



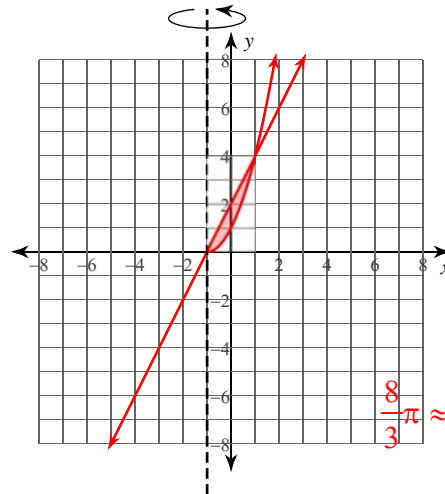
$$\frac{28}{15}\pi \approx 5.864$$

9) $x = \frac{y}{2} - 2$, $x = \sqrt{y} - 2$
Axis: $x = 2$



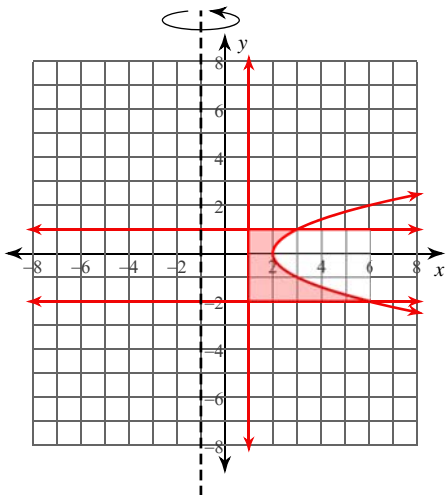
$$8\pi \approx 25.133$$

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



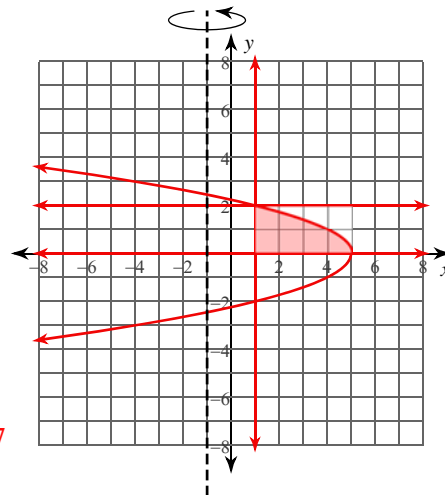
$$\frac{8}{3}\pi \approx 8.378$$

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



$$\frac{198}{5}\pi \approx 124.407$$

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



$$\frac{192}{5}\pi \approx 120.637$$