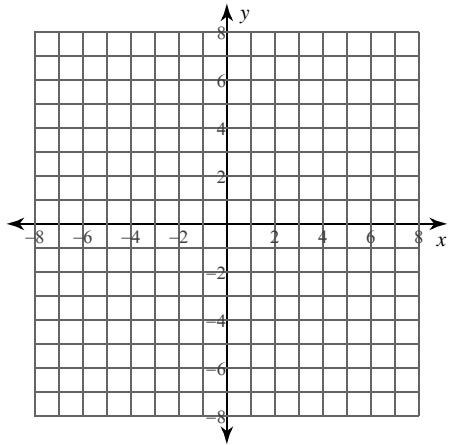


## Calculus Practice: Using Definite Integrals to Calculate Volume 3a

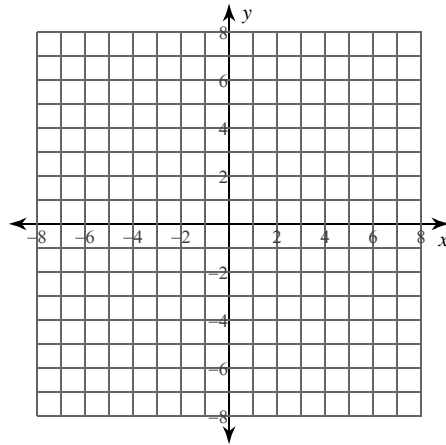
For each problem, find the volume of the solid that results when the region enclosed by the curves is revolved about the given axis. You may use the provided graph to sketch the curves and shade the enclosed region.

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



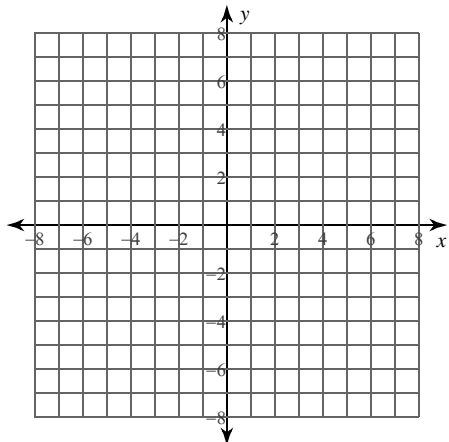
- A)  $8\pi \approx 25.133$   
B)  $\frac{23}{3}\pi \approx 24.086$   
C)  $6\pi \approx 18.85$   
D)  $16\pi \approx 50.265$

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



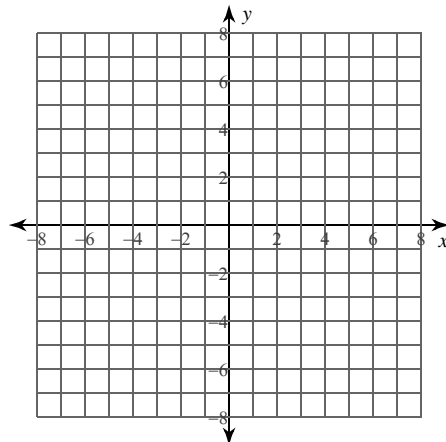
- A)  $\frac{5}{6}\pi \approx 2.618$       B)  $\frac{3}{2}\pi \approx 4.712$   
C)  $\frac{1}{6}\pi \approx 0.524$       D)  $\frac{1}{2}\pi \approx 1.571$

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



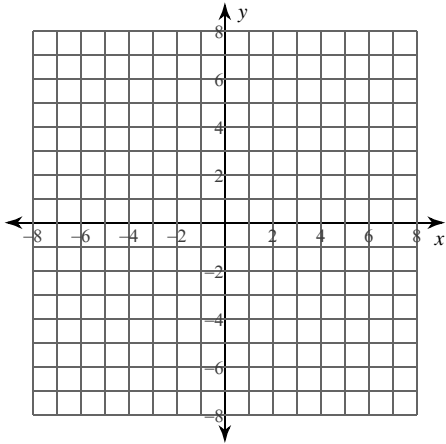
- A)  $\frac{32}{15}\pi \approx 6.702$   
B)  $\frac{16}{15}\pi \approx 3.351$   
C)  $\frac{46}{15}\pi \approx 9.634$   
D)  $\frac{16}{5}\pi \approx 10.053$

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



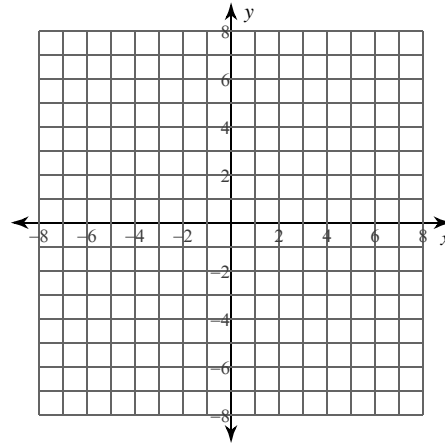
- A)  $\frac{13}{15}\pi \approx 2.723$   
B)  $\frac{8}{15}\pi \approx 1.676$   
C)  $\frac{38}{15}\pi \approx 7.959$   
D)  $\frac{1}{5}\pi \approx 0.628$

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



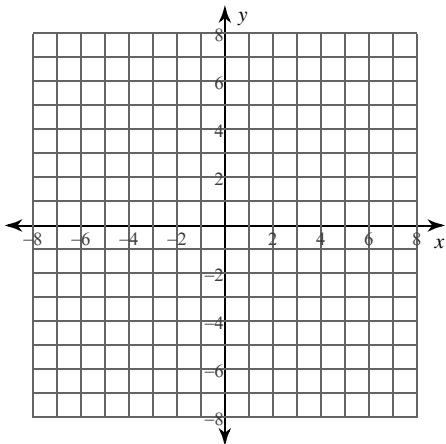
- A)  $\frac{16}{15}\pi \approx 3.351$
- B)  $\frac{17}{30}\pi \approx 1.78$
- C)  $\frac{32}{15}\pi \approx 6.702$
- D)  $\frac{46}{15}\pi \approx 9.634$

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



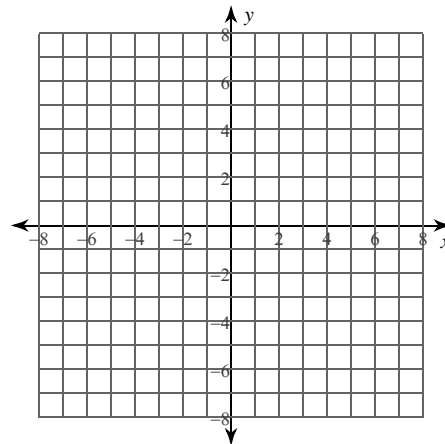
- A)  $\frac{611}{15}\pi \approx 127.968$
- B)  $\frac{192}{5}\pi \approx 120.637$
- C)  $\frac{202}{5}\pi \approx 126.92$
- D)  $\frac{212}{5}\pi \approx 133.204$

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



- A)  $6\pi \approx 18.85$
- B)  $8\pi \approx 25.133$
- C)  $\frac{17}{2}\pi \approx 26.704$
- D)  $\frac{25}{3}\pi \approx 26.18$

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

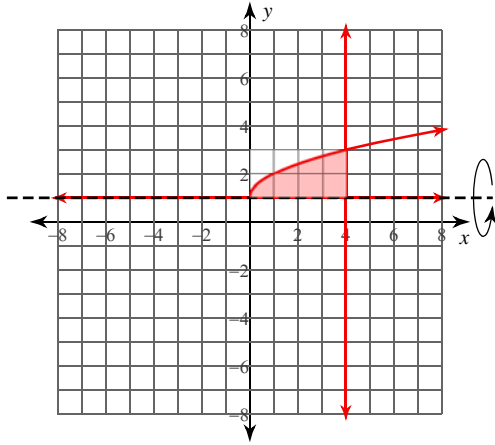


- A)  $\frac{5}{6}\pi \approx 2.618$
- B)  $\frac{3}{2}\pi \approx 4.712$
- C)  $\frac{1}{2}\pi \approx 1.571$
- D)  $\pi \approx 3.142$

### Calculus Practice: Using Definite Integrals to Calculate Volume 3a

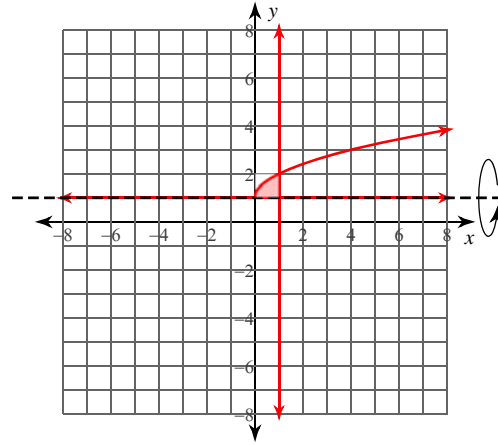
For each problem, find the volume of the solid that results when the region enclosed by the curves is revolved about the given axis. You may use the provided graph to sketch the curves and shade the enclosed region.

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



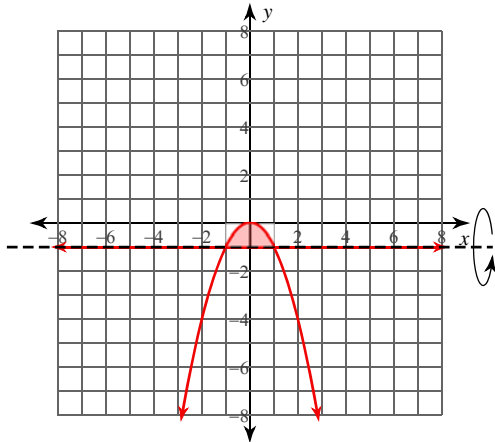
- \*A)  $8\pi \approx 25.133$
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- C)  $6\pi \approx 18.85$
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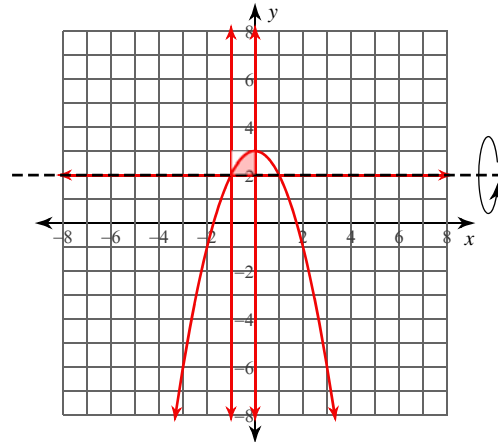
- A)  $\frac{5}{6}\pi \approx 2.618$
- B)  $\frac{3}{2}\pi \approx 4.712$
- C)  $\frac{1}{6}\pi \approx 0.524$
- \*D)  $\frac{1}{2}\pi \approx 1.571$

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



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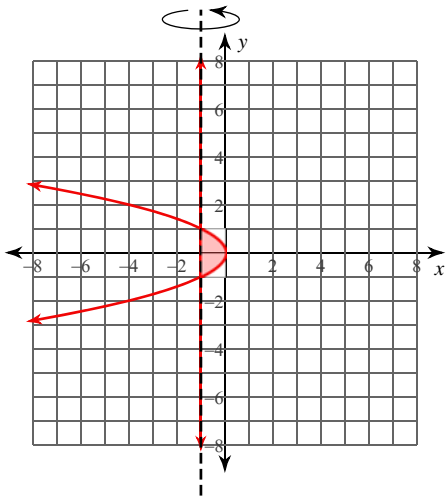
4)  $y = -x^2 + 3$ ,  $y = 2$ ,  $x = -1$ ,  $x = 0$   
Axis:  $y = 2$



- A)  $\frac{13}{15}\pi \approx 2.723$
- \*B)  $\frac{8}{15}\pi \approx 1.676$
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5)  $x = -y^2$ ,  $x = -1$

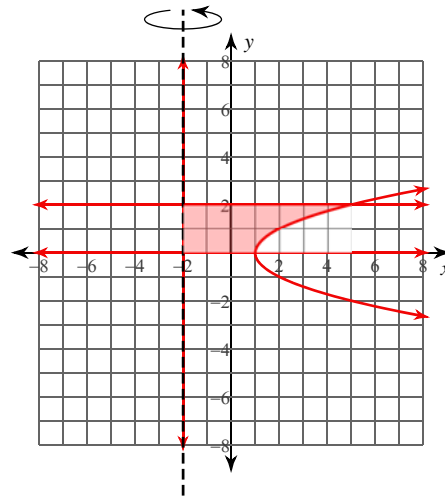
Axis:  $x = -1$



- \*A)  $\frac{16}{15}\pi \approx 3.351$
- B)  $\frac{17}{30}\pi \approx 1.78$
- C)  $\frac{32}{15}\pi \approx 6.702$
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6)  $x = y^2 + 1$ ,  $x = -2$ ,  $y = 0$ ,  $y = 2$

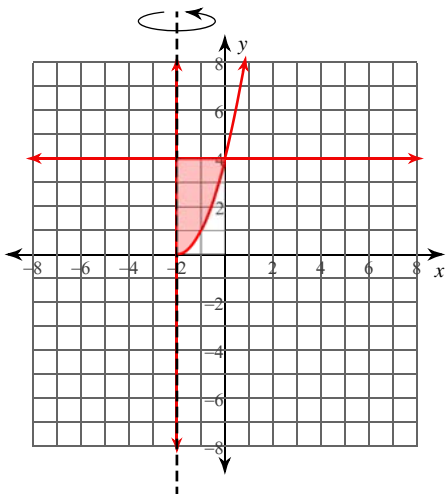
Axis:  $x = -2$



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- B)  $\frac{192}{5}\pi \approx 120.637$
- \*C)  $\frac{202}{5}\pi \approx 126.92$
- D)  $\frac{212}{5}\pi \approx 133.204$

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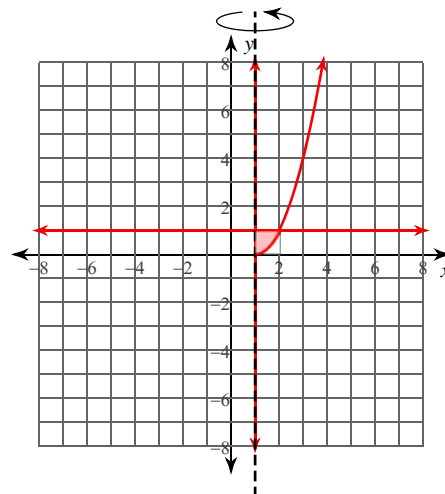
Axis:  $x = -2$



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- \*B)  $8\pi \approx 25.133$
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