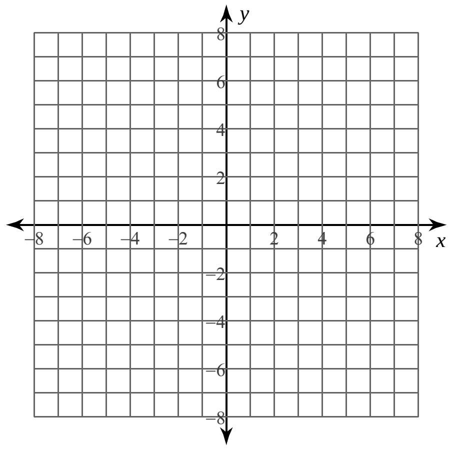
Calculus Practice: Using Definite Integrals to Calculate Volume 5a

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

1) $y = 7,\ y = \sqrt{x},\ x = 0,\ x = 1$



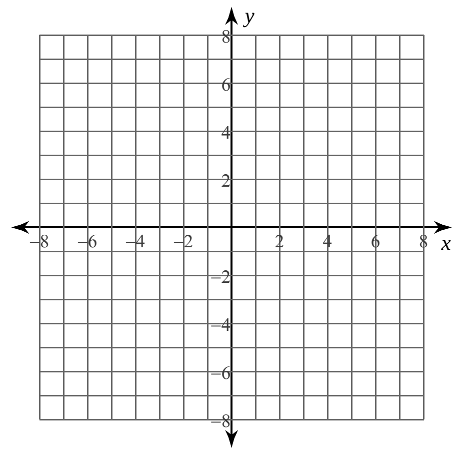
A) $49\pi \approx 153.938$

B) $\frac{97}{2}\pi \approx 152.367$

C) $\frac{101}{2}\pi \approx 158.65$

D) $\frac{293}{6}\pi \approx 153.414$

2) $y = 3,\ y = \frac{2}{x},\ x = 4$



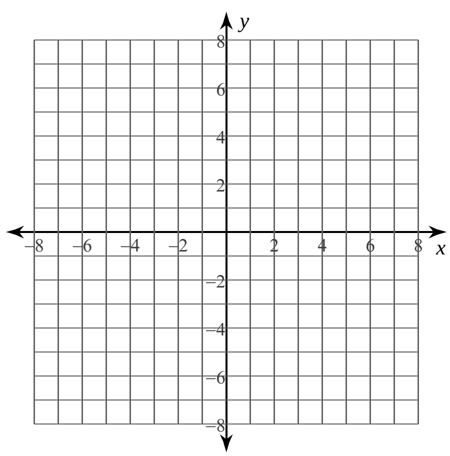
A) $25\pi \approx 78.54$

B) $50\pi \approx 157.08$

C) $23\pi \approx 72.257$

D) $27\pi \approx 84.823$

3) $y = -x^2 + 6,\ y = 2$



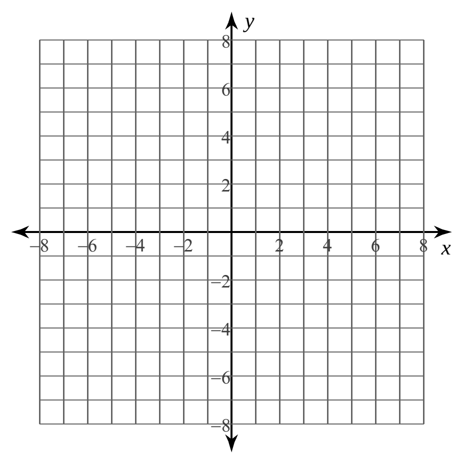
A) $\frac{768}{5}\pi \approx 482.549$

B) $\frac{384}{5}\pi \approx 241.274$

C) $\frac{389}{5}\pi \approx 244.416$

D) $\frac{394}{5}\pi \approx 247.558$

4) $y = x^2 + 3,\ y = 1,\ x = 1,\ x = 2$



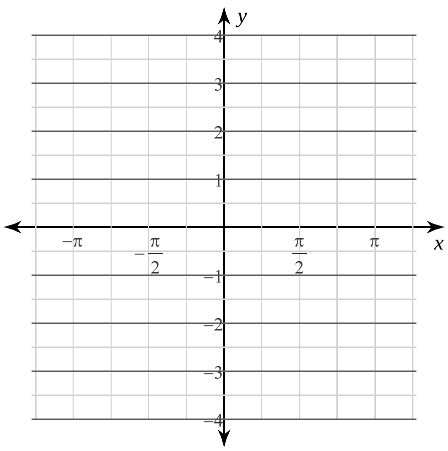
A) $\frac{151}{5}\pi \approx 94.876$

B) $\frac{141}{5}\pi \approx 88.593$

C) $\frac{287}{10}\pi \approx 90.164$

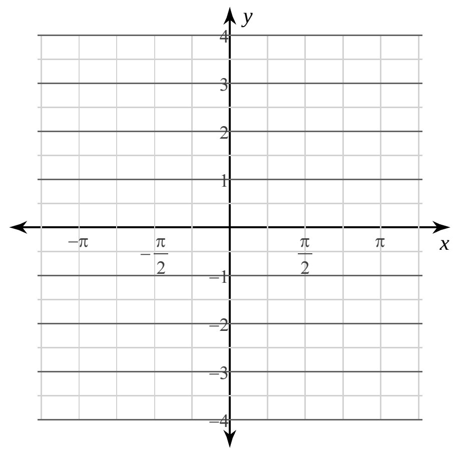
D) $\frac{146}{5}\pi \approx 91.735$

5) $y = 2\sec x,\ \ y = \sec x,\ \ x = -\frac{\pi}{3},\ \ x = \frac{\pi}{4}$



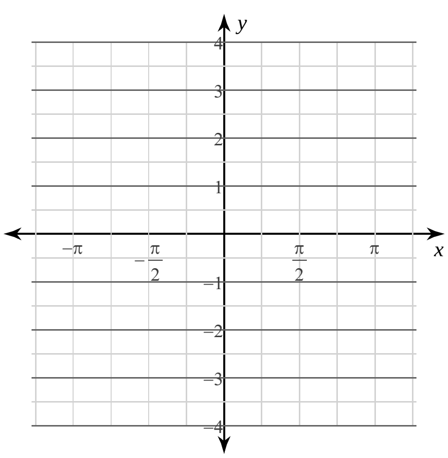
A) $\left(4 + 3\sqrt{3}\right)\pi \approx 28.891$
B) $\left(3 + 3\sqrt{3}\right)\pi \approx 25.749$
C) $4\pi \approx 12.566$
D) $\left(2 + 3\sqrt{3}\right)\pi \approx 22.607$

6) $y = 2\sec x,\ \ y = \sec x,\ \ x = -\frac{\pi}{4},\ \ x = 0$



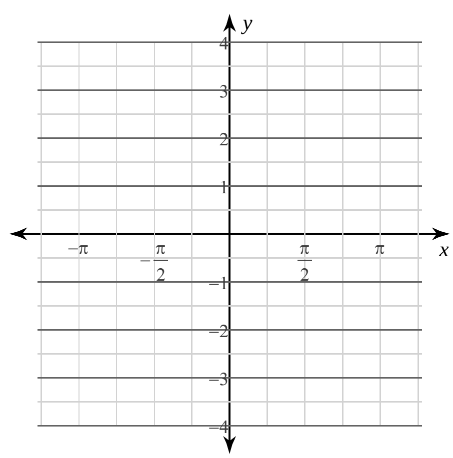
A) $\frac{11}{4}\pi \approx 8.639$
B) $\frac{7}{2}\pi \approx 10.996$
C) $4\pi \approx 12.566$
D) $3\pi \approx 9.425$

7) $y = 2,\ \ y = \sqrt{\cos x},\ \ x = -\frac{\pi}{2},\ \ x = \frac{\pi}{2}$



A) $(4\pi - 2)\pi \approx 33.195$
B) $\left(4\pi - 6 + 3\sqrt{2}\right)\pi \approx 33.958$
C) $\left(4\pi - 5 + 2\sqrt{2}\right)\pi \approx 32.656$
D) $(4\pi - 3)\pi \approx 30.054$

8) $y = 2\csc x,\ \ y = \csc x,\ \ x = \frac{\pi}{3},\ \ x = \frac{3\pi}{4}$



A) $\left(2 + \sqrt{3}\right)\pi \approx 11.725$
B) $\left(4 + \sqrt{3}\right)\pi \approx 18.008$
C) $\left(3 + \sqrt{3}\right)\pi \approx 14.866$
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Name________________________________

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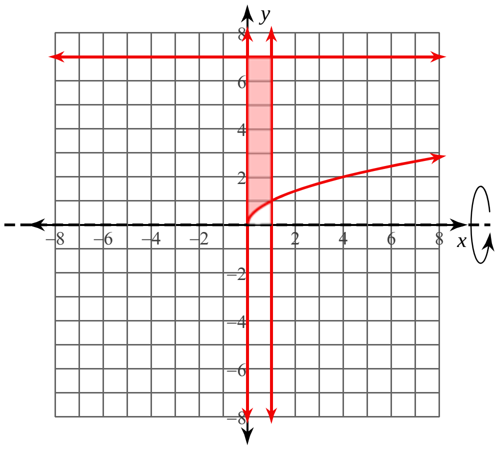

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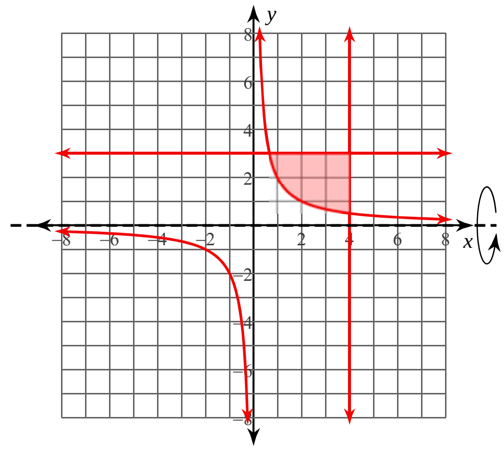

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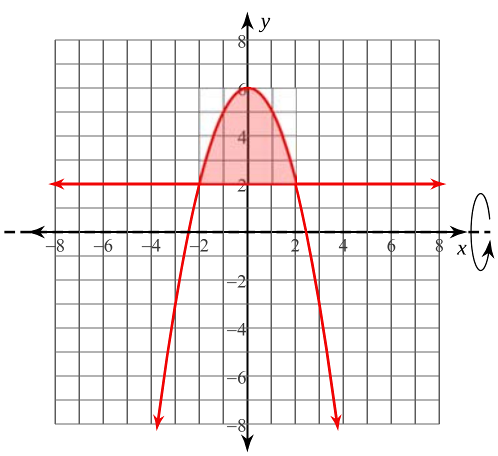

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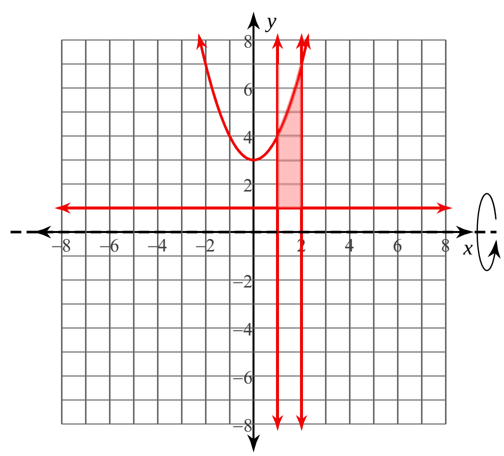

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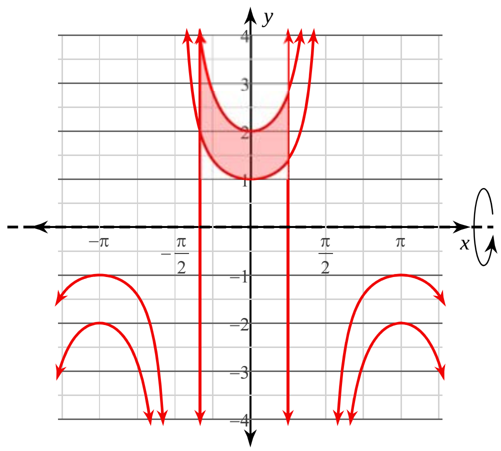

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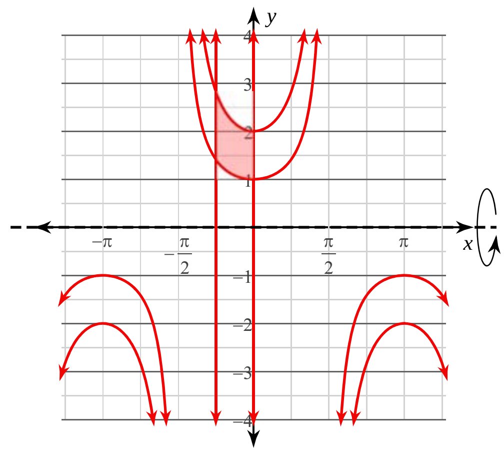

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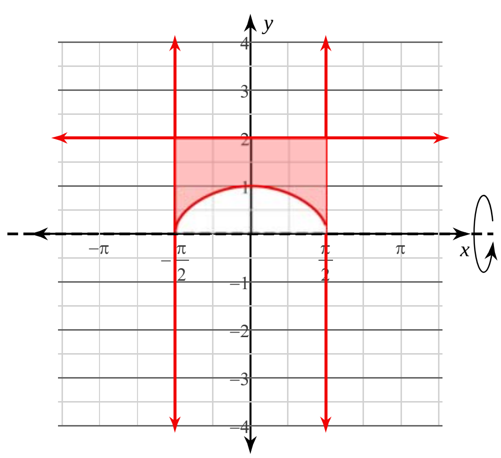

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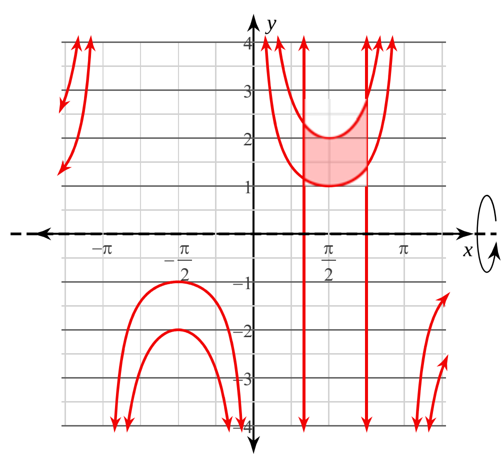

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