The Shell Method 1

Find the volume of the following solids. Include a graph with each.

1. Area formed by $y = x^2$, $y = 0$, $x = 2$ rotated over the y – axis

2. Area formed by $y = x^2$, $y = 0$, $x = 2$ rotated over $x = 4$.

3. Area between by $y = x^2$, $y = 4x - x^2$, rotated over the y-axis.

4. Area between by $y = x^2$, $y = 4x - x^2$, rotated over $x = -2$.

5. Area formed by $y = x^3$, $y = 0$, $x = 2$ rotated over the y - axis.

6. Area between by $y = x$, $y = x^2$, rotated over the y-axis.

7. Area between by $y = x$, $y = x^2$, rotated over the $x = -2$.

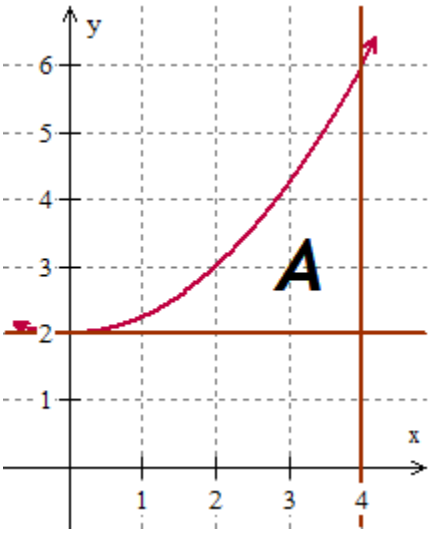
8. Area between by $y = x$, $y = x^2$, rotated over the $x = 2$.

9. Area formed by $y = e^x$, $y = 2$, $x = 0$ rotated over the y-axis.

10. Area formed by $y = e^x$, $y = 2$, $x = 0$ rotated over $x = -1$.

Recall. Round to 3 decimal places.

The area A is formed by $y = 2$, $x = 4$ and $y = \frac{1}{4}x^2 + 2$



11. Find the area A.

Use the disk and washer methods to find the volume when the area A is rotated

12. Over the x-axis.

13. Over the line y=7

14. Over the line y=-3.

15. Over the y-axis.

16. Over the line x=-1.

Answers

1. 8π
2. $\frac{40\pi}{3}$
3. $\frac{16\pi}{3}$
4. 16π
5. $\frac{64\pi}{5}$
6. $\frac{\pi}{6}$
7. $\frac{5\pi}{6}$
8. $\frac{\pi}{2}$
9. 0.188π
10. 0.961π
11. $\frac{16}{3}$
12. $\frac{512\pi}{15}$
13. 40.533π
14. 66.133π
15. 32π

17. Over the line x=6.