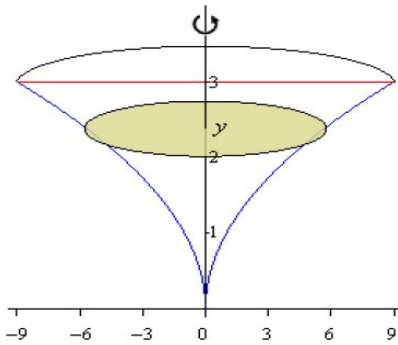


Volume Of A Solid (By Rotation)

1. Find the Volume obtained by rotation of the region bounded by $y = \sqrt{x}$, $y = 3$ and the y axis about the y axis.
2. Find the Volume obtained by rotation of the region bounded by $y = 7 - x^2$, $x = -2$, $x = 2$ and the x axis about the x axis.
3. Find the Volume obtained by rotation of the region bounded by $x = y^2 - 6y + 10$, $x = 5$ about the y axis.
4. Find the Volume obtained by rotation of the region bounded by $y = 2x^2$, $y = x^3$ about the x axis.
5. Find the Volume obtained by rotation of the region bounded by $y = 6e^{-2x}$ and $y = 6 + 4x - 2x^2$ between $x = 0$ and $x = 1$ about the line $y = -2$.
6. Find the Volume obtained by rotation of the region bounded by $y = 10 - 6x + x^2$, $y = -10 + 6x - x^2$, $x = 1$ and $x = 5$ about the line $y = 8$.
7. Find the Volume obtained by rotation of the region bounded by $x = y^2 - 4$, $x = 6 - 3y$ about the line $x = 24$.
8. Find the Volume obtained by rotation of the region bounded by $y = 2x + 1$, $x = 4$ and $y = 3$ about the line $x = -4$.
9. Find the Volume obtained by rotation of the region bounded by $x = (y - 2)^2$, the x axis and the y axis about the x axis.
10. Find the Volume obtained by rotation of the region bounded by $y = \frac{1}{x}$, $x = \frac{1}{2}$, $x = 4$ and the x axis about the y axis.
11. Find the Volume obtained by rotation of the region bounded by $y = 4x$ and $y = x^3$ about the y-axis.(Assume $x \geq 0$)
12. Find the Volume obtained by rotation of the region bounded by $y = 4x$ and $y = x^3$ about the x-axis.(Assume $x \geq 0$)
13. Find the Volume obtained by rotation of the region bounded by $y = 2x + 1$, $y = 3$ and $x = 4$ about the line $y = 10$.
14. Find the Volume obtained by rotation of the region bounded by $x = y^2 - 4$ and $x = 6 - 3y$ about the line $y = -8$.
15. Find the Volume obtained by rotation of the region bounded by $y = x^2 - 6x + 9$ and $y = -x^2 + 6x - 1$ about the line $x = 8$.
16. Find the Volume obtained by rotation of the region bounded by $y = \frac{e^{\frac{x}{2}}}{x+2}$, $y = 5 - \frac{x}{4}$, $x = -1$ and $x = 6$ about the line $x = -2$.

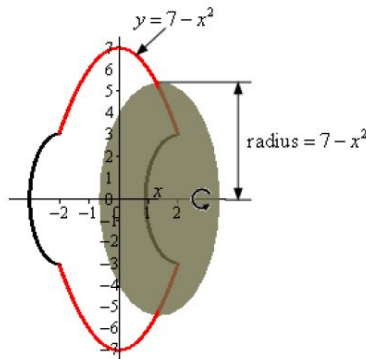
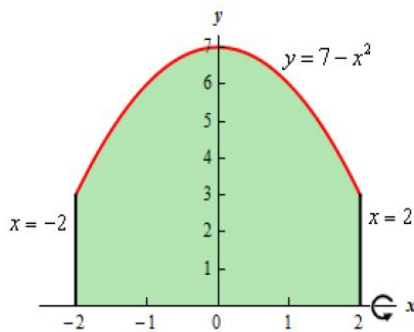
Hints And Solutions

1. Start with sketching the bounded region and determine a formula for the area of the disk.



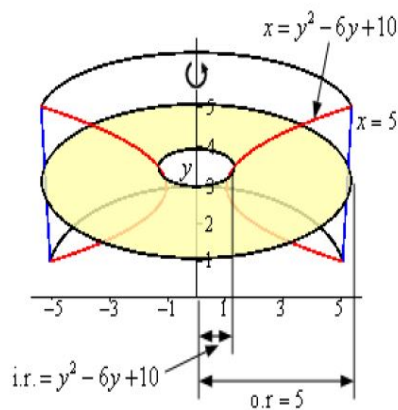
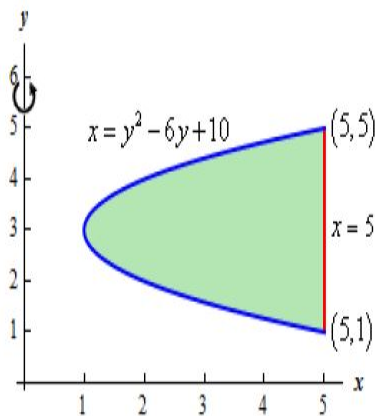
Ans : $\frac{243\pi}{5}$

2. Start with sketching the bounded region and determine a formula for the area of the disk.



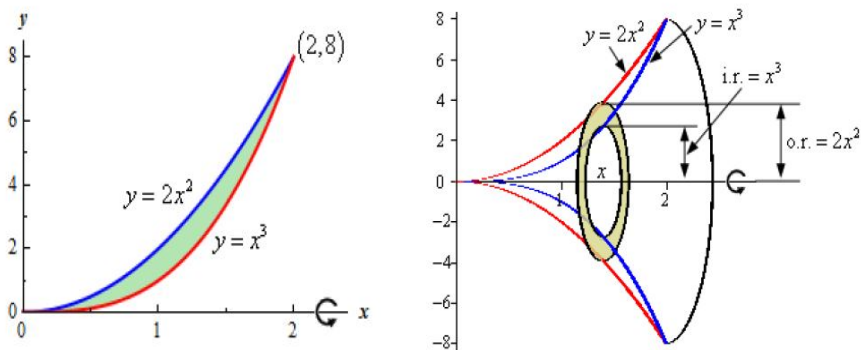
Ans : $\frac{2012\pi}{15}$

3. Start with sketching the bounded region and determine a formula for the area of the disk.



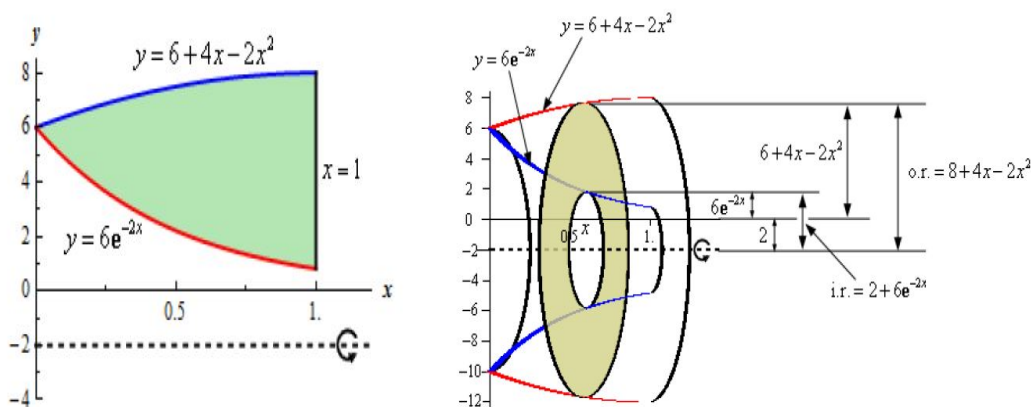
Ans : $\frac{1088\pi}{15}$

4. Start with sketching the bounded region and determine a formula for the area of the disk.



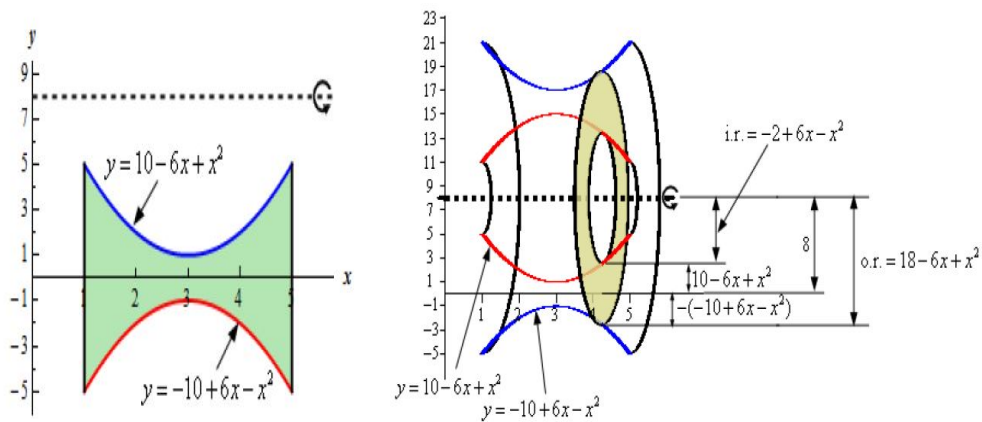
Ans : $\frac{256\pi}{35}$

5. Start with sketching the bounded region and determine a formula for the area of the disk.



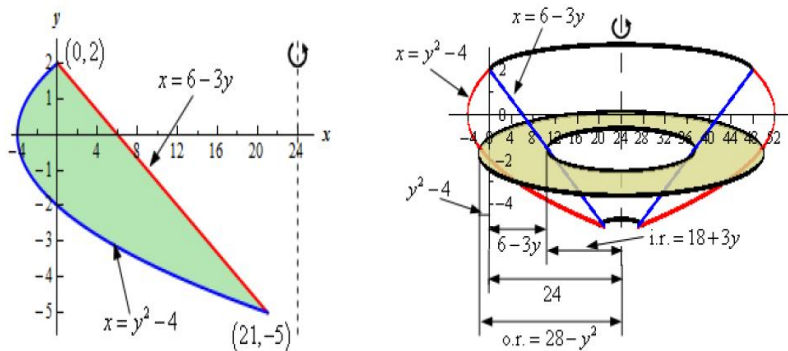
Ans : $(\frac{937}{15} + 12e^{-2} + 9e^{-4})\pi$

6. Start with sketching the bounded region and determine a formula for the area of the disk.



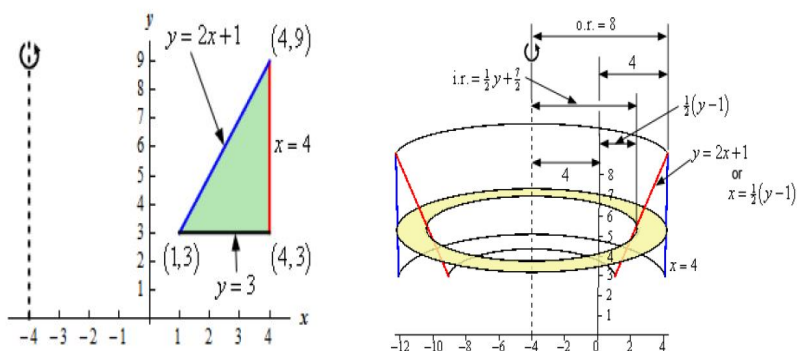
Ans : $\frac{896\pi}{3}$

7. Start with sketching the bounded region and determine a formula for the area of the disk.



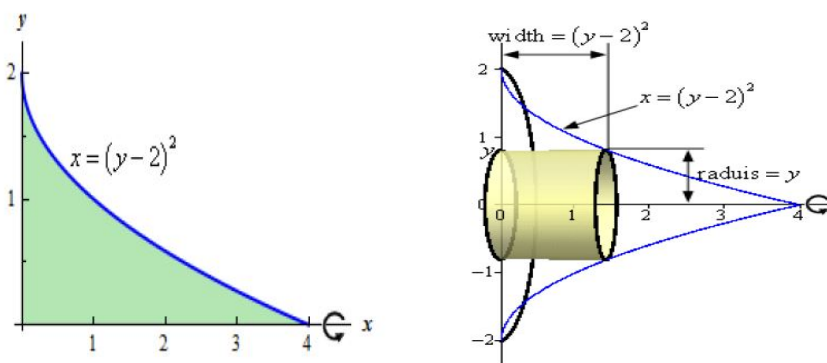
Ans : $\frac{31556\pi}{15}$

8. Start with sketching the bounded region and determine a formula for the area of the disk.



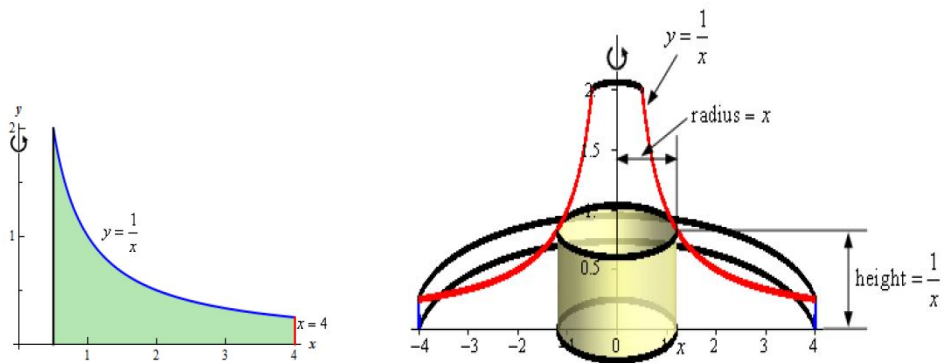
Ans : 126π

9. Start with sketching the bounded region and determine a formula for the area of the cylinder.



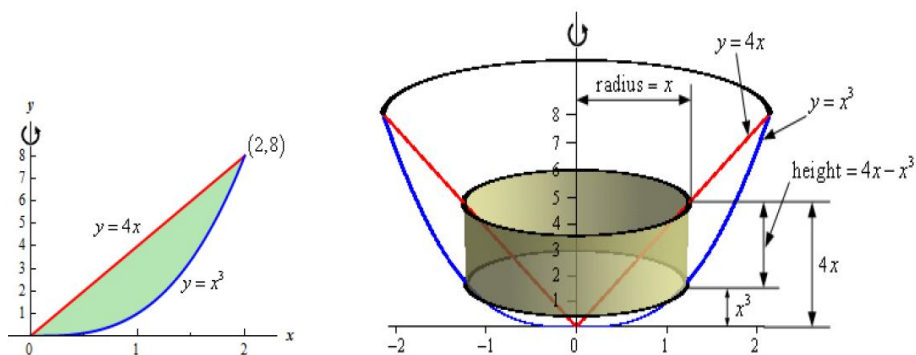
Ans : $\frac{8\pi}{3}$

10. Start with sketching the bounded region and determine a formula for the area of the cylinder.



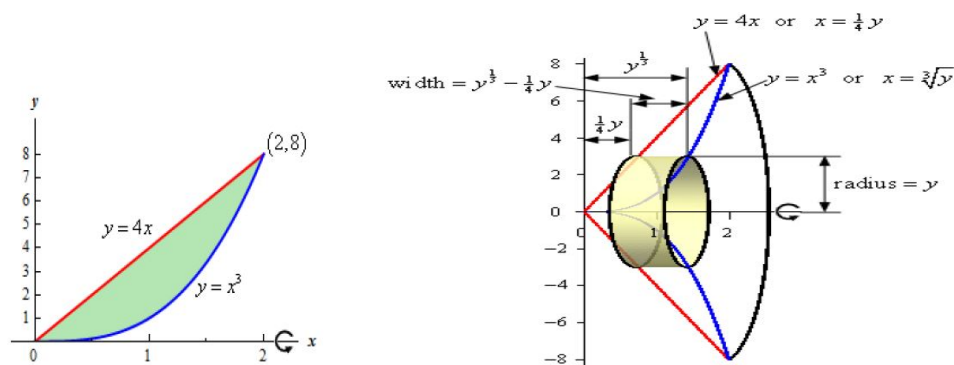
Ans : 7π

11. Start with sketching the bounded region and determine a formula for the area of the cylinder.



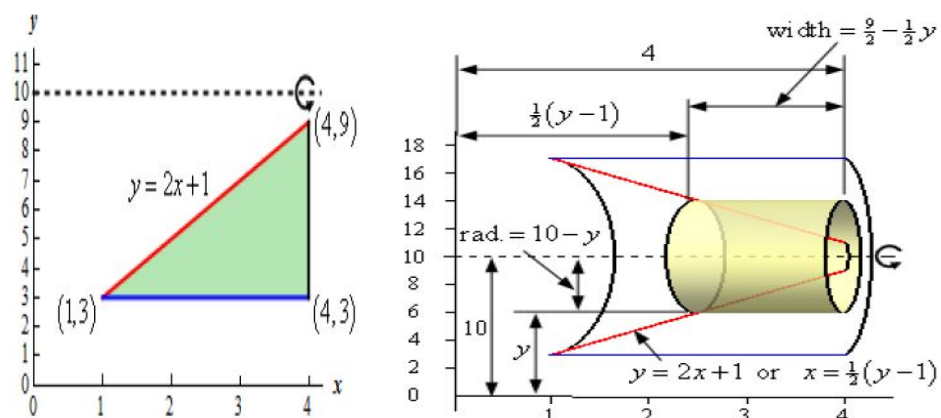
Ans : $\frac{128\pi}{15}$

12. Start with sketching the bounded region and determine a formula for the area of the cylinder.



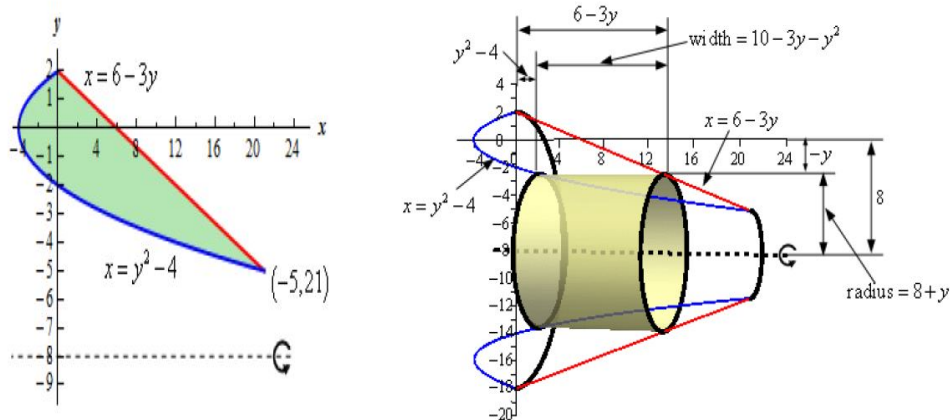
Ans : $\frac{512\pi}{21}$

13. Start with sketching the bounded region and determine a formula for the area of the cylinder.



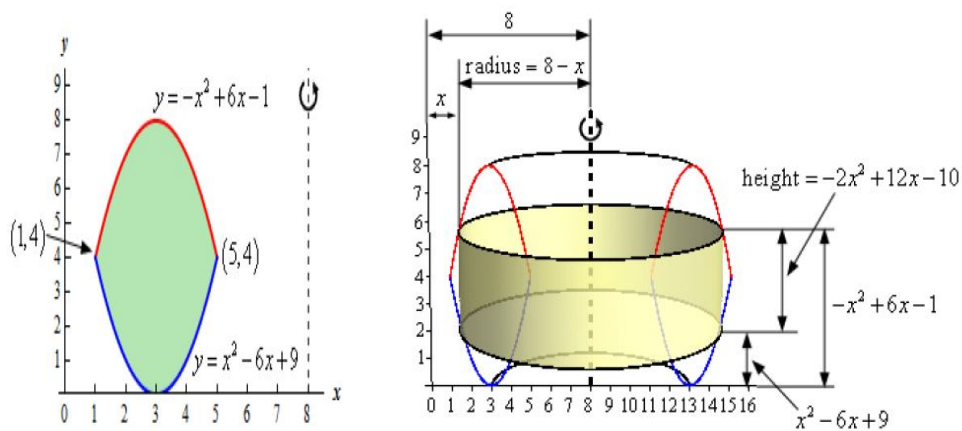
Ans : 90π

14. Start with sketching the bounded region and determine a formula for the area of the cylinder.



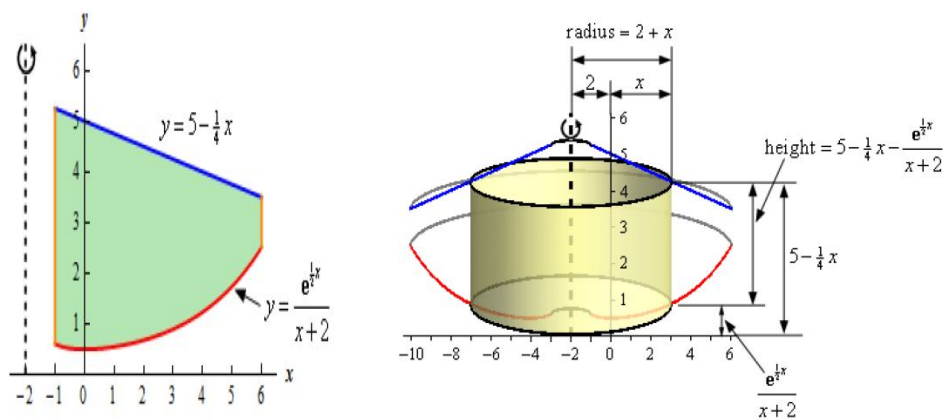
Ans : $\frac{4459\pi}{6}$

15. Start with sketching the bounded region and determine a formula for the area of the cylinder.



Ans : $\frac{640\pi}{3}$

16. Start with sketching the bounded region and determine a formula for the area of the cylinder.



Ans : $2\pi\left(\frac{392}{3} + 2e^{\frac{-1}{2}} - 2e^3\right)$