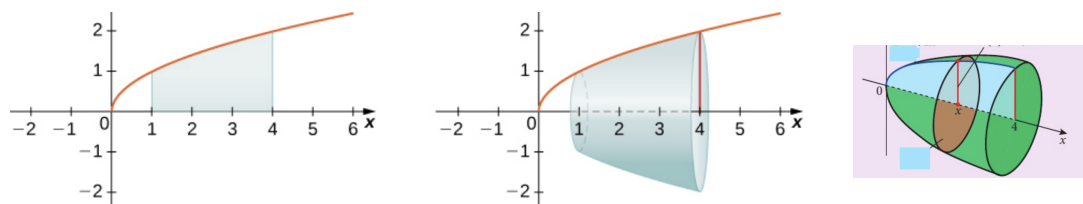


I Theory

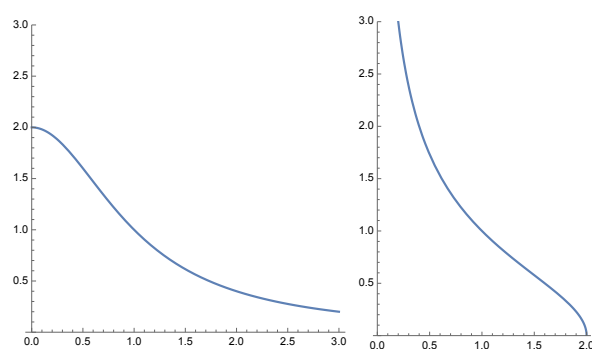
First method (around the x – axis)



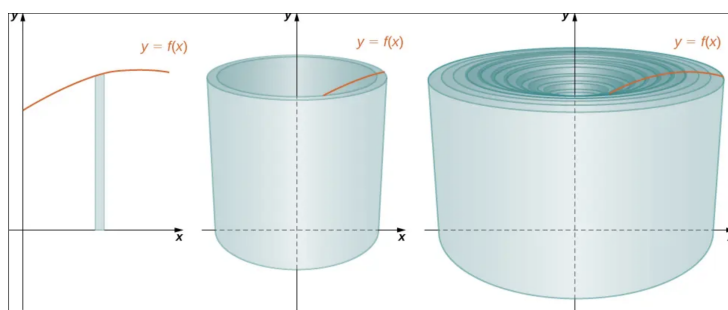
Formula : $V =$

For the rotation around the y -axis, we can use the inverse function

Example : Rotation the first curve (f) around the y – axis gives the same result as rotating the second curve (f^{-1}) around the x – axis.



Second method : (around the y – axis)

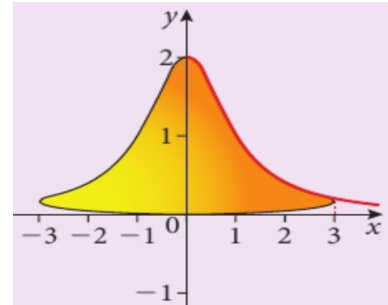
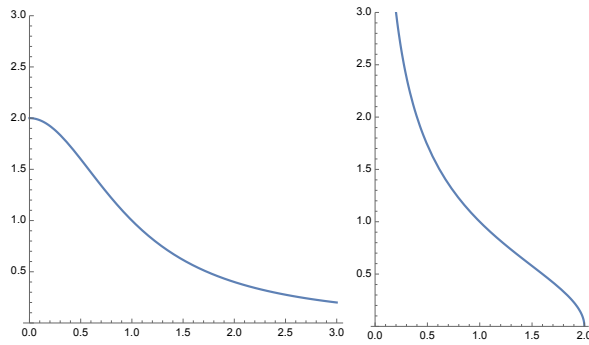


Formula : $V =$

II Exercise

1) Let us consider the curve of equation $y = f(x) = \frac{2}{x^2 + 1}$

The first figure below shows this curve, and the curve of $y = f^{-1}(x)$



second figure

The second figure show S the solid of revolution of the curve $y = f(x)$ around the y – axis, for x between 0 and 3.

1) Calculate the volume V of S

i) Using the first method, (with the inverse function).

ii) Using the second method.

1) What is the volume of the solid of revolution generated by the rotation of the curve $y = f(x)$ around the x axis, for x between 0 and 3 ?

