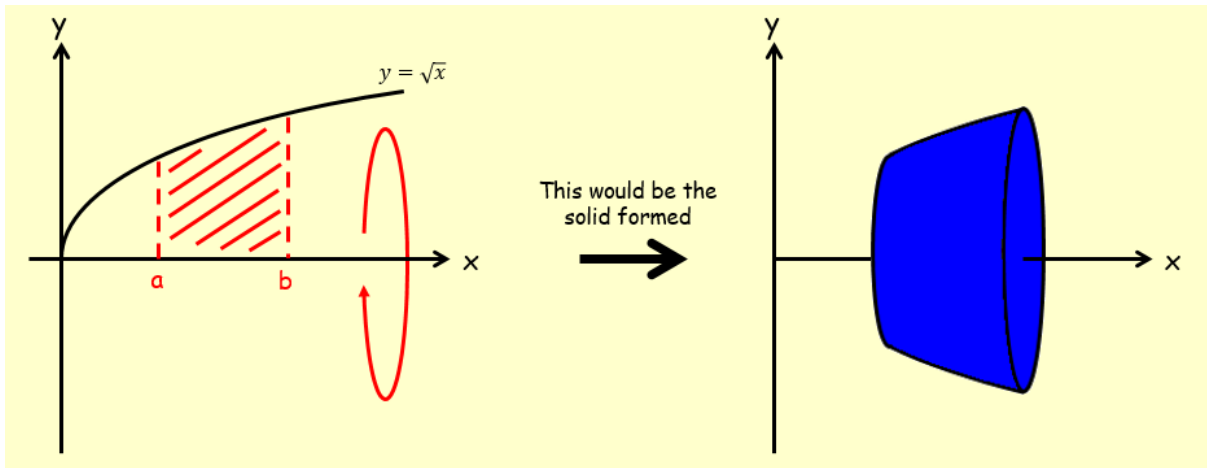
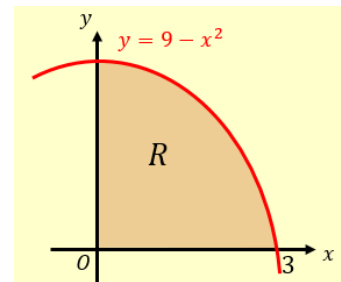


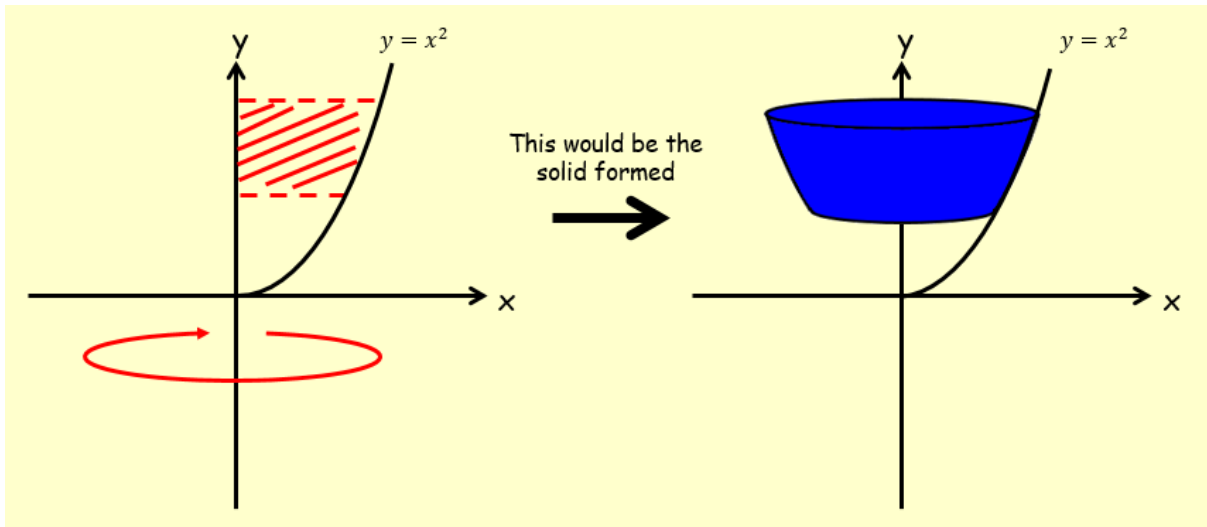
## 5A Rotations Around the x-axis



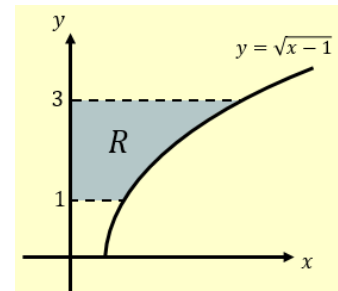
1. The diagram shows the region  $R$  which is bounded by the x-axis, the y-axis and the curve with equation  $y = 9 - x^2$ .  
The region is rotated through  $360^\circ$  about the x-axis.  
Find the exact volume of the solid generated.



## 5B Rotations Around the y-axis



1. The diagram shows the curve with equation  $y = \sqrt{x-1}$ .  
The region R is bounded by the curve, the y axis and the lines  $y = 1$  and  $y = 3$ .  
The region is rotated  $360^\circ$  about the y axis.  
Find the volume of the solid generated.

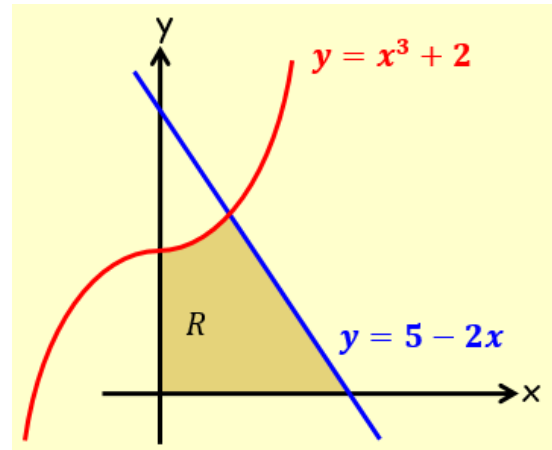


## 5C Composite Volumes of Revolution

$$\text{Cylinder} = \pi r^2 h$$

$$\text{Cone} = \frac{1}{3} \pi r^2 h$$

1. The region R is bounded by the curve with equation  $y = x^3 + 2$ , the line  $y = 5 - 2x$ , and the x and y axes.
  - a) Verify that the coordinates of A are (1,3)



- b) A solid is created by rotating the region  $360^\circ$  about the x-axis. Find the volume of this solid

2. The diagram shows the region R bounded by the curves with equations:

$y = \sqrt{x}$  and  $y = \frac{1}{8x}$  and the line  $x = 1$ .

The region is rotated through  $360^\circ$  about the x-axis.

Find the exact volume of the solid generated.

