

### 11.4 Volumes of Rotational Solids (part 3)

(1) The Disc Method –

(2) The Washer Method –

(3) The Shell Method –

Representative radius –

Revolution about the  $x$ -axis:



Revolution about the  $y$ -axis:



Rotate the area bounded by  $y = x^3 + x$ ,  $x = 2$  and the  $x$ -axis around the  $y$ -axis, and calculate the volume of the solid of revolution.

Calculate the volume generated by rotating the area bounded by  $y = \sqrt{x}$  and  $y = x^3$  about the  $x$ -axis using the shell method.