

Show all work on this sheet, including indications of mental steps, in a clearly organized way that speaks for itself. Use proper mathematical notation/syntax. Label parts, box final short answers.

- ① Set up but do not evaluate an integral for the volume of the solid obtained by rotating the region bounded by the following curves about the specified axis:

$y = x^3$ ,  $y = x^2$  about  $y = 1$ . Begin by drawing a completely labeled diagram that illustrates the problem and gives all the information necessary to set up the integral.

- ②  $\int_0^{\pi/2} 2\pi \cos^2 x \, dx$  represents the volume of a solid. Describe the solid in words and illustrate it with a completely labeled diagram.