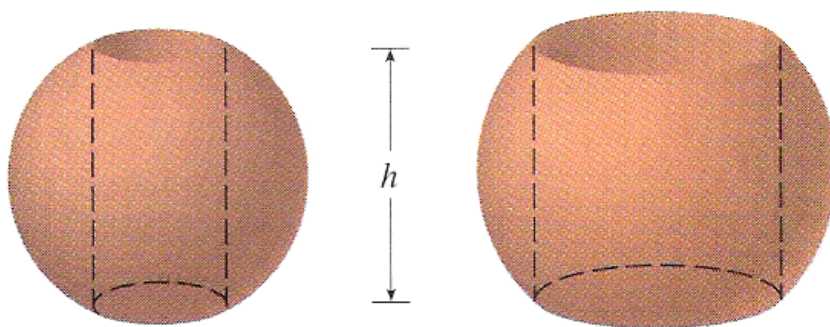


1. Demonstrate how to use integration by parts to find this antiderivative:

$$\int e^x \sin x dx$$

2. Napkin Ring Problem



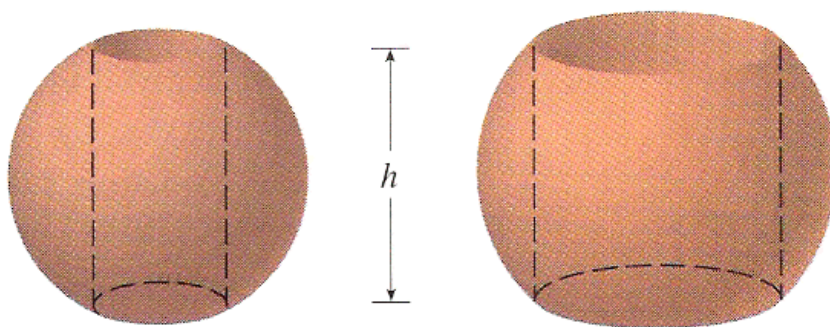
Suppose you make napkin rings by drilling holes with different diameters through two wooden balls (which also have different diameters). You discover that both napkin rings have the same height h , as shown in the figure.

- Guess which ring has more wood in it.
- Check your guess: Use cylindrical shells to find a formula for the volume of a napkin ring created by drilling a hole through the center of a sphere of radius R leaving a height, h . Express your equation for V in terms of R and h .

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