Math 142

Professor Johnson

Problem 1: Find the volume of the frustum of the right circular cone with height 6, lower base radius 10 and top radius 4.

Problem 2: Suppose you make two napkin rings by drilling holes with different diameters through two wooden balls (which also have different diameters). You discover both napkin rings have the same height h, as shown in the figure.

(a) Guess which napkin ring has larger volume of wood.

(b) Check your guess: Use cylindrical shells to compute the volume of the two napkin rings below and write your answer in terms of h.

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Problem 3: Find the volume of the torus (a doughnut shaped object) obtained by rotating a disk of radius 3 centered at the origin about the line x=4.