

**MASSACHUSETTS MATHEMATICS LEAGUE
CONTEST 1 - OCTOBER 2006
ROUND 1 VOLUME & SURFACES**

ANSWERS

A) _____

B) _____ cm^3

C) _____

A) The volume of a right circular cylinder is 48π and the circumference of the base is 8π . Find the total surface area in terms of π .

B) Six slices, each with a uniform thickness of half a centimeter, are removed from a wooden cube, one slice per face, reducing the volume of the original cube by 169 cm^3 . What is the volume of the resulting smaller cube in cm^3 ?

C) Points A and B are on diametrically opposite “sides” of the cylinder. Find the exact shortest possible distance from A to B along the surface of the cylinder. The diameter and height of the cylinder are 4 units and 1 unit respectively.

