1. The figure below shows a right circular cylinder inscribed in a cube with edge of length x . What is the ratio of the volume of the cylinder to the volume of the cube?  (A) (B) (C) (D) (E)

2. The volume of a right circular cylinder is the same numerical value as its total surface area. Find the smallest integral value for the radius of the cylinder. (A) 1 (B) 2 (C) 3 (D) 4 (E) This value cannot be determined.

3. The length, width, and height of a rectangular solid are 5 cm, 3 cm, and 7 cm, respectively. What is the length of the longest segment whose endpoints are vertices of the rectangular solid? (A) 5.8 cm (B) 7.6 cm (C) 8.6 cm (D) 9.1 cm (E) 15 cm

1. The distance between two points in space, P (x,–1,–1) and Q (3,–3,1), is 3. Find the possible values of x. (A) 1 or 2 (B) 2 or 3 (C) –2 or –3 (D) 2 or 4 (E) –2 or –4

2. The point (–4,0,7) lies on the (A) y-axis (B) xy plane (C) yz plane (D) xz plane (E) z -axis

3. The region in the first quadrant bounded by the line 3x + 2y = 7 and the coordinate axes is rotated about the x-axis. What is the volume of the resulting solid? (A) 8 units3 (B) 20 units3 (C) 30 units3 (D) 90 units3 (E) 120 units3