2

3D GEOMTERY

2005A   11. A wooden cube n units on a side is painted red on all six faces and then cut into n^3 unit cubes. Exactly one-fourth of the total number of faces of the unit cubes are red. What is n?

(A) 3   (B) 4   (C) 5   (D) 6   (E) 7

2007A 11. The numbers from 1 to 8 are placed at the vertices of a cube in such a manner that the sum of the four numbers on each face is the same. What is this common sum?

(A) 14   (B) 16   (C) 18   (D) 20   (E) 24

2009A 11. One dimension of a cube is increased by 1, another is decreased by 1, and the third is left unchanged. The volume of the new rectangular solid is 5 less than that of the cube. What was the volume of the cube?

(A) 8   (B) 27   (C) 64   (D) 125   (E) 216

2017A 11. The region consisting of all points in three-dimensional space within 3 units of line segment $\overline{AB}$ has volume 216π. What is the length AB?

(A) 6   (B) 12   (C) 18   (D) 20   (E) 24

2013A

14. A solid cube of side length 1 is removed from each corner of a solid cube of side length 3. How many edges does the remaining solid have?

(A) 36   (B) 60   (C) 72   (D) 84   (E) 108