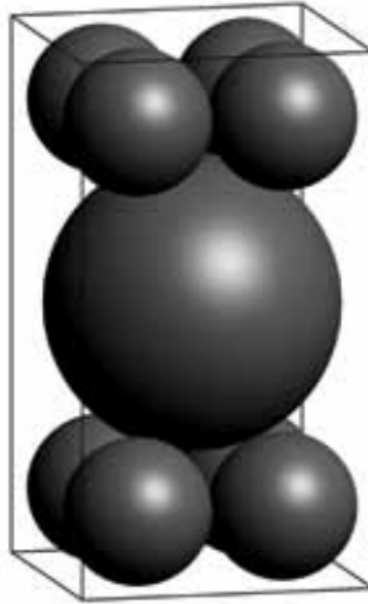


UNIT 11 QUESTIONS 16-20

SYSTEM

- 2014A 17. A $4 \times 4 \times h$ rectangular box contains a sphere of radius 2 and eight smaller spheres of radius 1. The smaller spheres are each tangent to three sides of the box, and the larger sphere is tangent to each of the smaller spheres. What is h ?



- (A) $2 + 2\sqrt{7}$ (B) $3 + 2\sqrt{5}$ (C) $4 + 2\sqrt{7}$ (D) $4\sqrt{5}$ (E) $4\sqrt{7}$
- 2005B 19. Let x and y be two-digit integers such that y is obtained by reversing the digits of x . The integers x and y satisfy $x^2 - y^2 = m^2$ for some positive integer m . What is $x + y + m$?
- (A) 88 (B) 112 (C) 116 (D) 144 (E) 154