SOLID GEOMETRY — concluded

8 Two planes intersect in a line \( AB \). A third plane \( RS \) cuts the two given planes in parallel lines. Prove that \( RS \) is parallel to \( AB \). \([12\frac{1}{2}]\)

9 A circle and an equilateral triangle inscribed in it are revolved about an altitude of the triangle as an axis. If the altitude of the triangle is 6 inches, find the volume of the sphere and the total area of the cone generated. \([5, 7\frac{1}{2}]\)

10 A side of the base of a regular hexagonal pyramid is 6 inches and a lateral edge is 10 inches; find the volume and the lateral area of the pyramid. \([6\frac{1}{2}, 6]\)

11 A cylindric hole, 6 inches in diameter, is bored through a sphere, the axis of the cylinder passing through the center of the sphere. The height of the cylindric hole is 8 inches. Find the area of the surface of the sphere that remains. \([12\frac{1}{2}]\)

12 State whether each of the following statements is true or false: \([\text{Write the letters } a, b, c, d, e \text{ in a column and then write the word } \text{true or false after each letter.}]\) \([12\frac{1}{2}]\)

\(a\) Two lines parallel to the same plane are parallel to each other.

\(b\) Two lines perpendicular to the same line are parallel to each other.

\(c\) The lateral area of a right circular cylinder circumscribed about a sphere is equal to the area of the sphere.

\(d\) Six congruent equilateral triangles may be so placed that they completely bound a solid.

\(e\) If two circular cones have congruent bases and equal altitudes, their lateral areas are equal.