1 Define **diedral angle**, **pyramid**, **regular polyhedron**, **right cone**, **sphere**

2–3 Prove that a line perpendicular to each of two lines of a plane at their intersection is perpendicular to the plane.

4 Prove that the sum of two face angles of a trihedral angle is greater than the third angle.

5–6 Prove that if a pyramid is cut by a plane parallel to the base, (a) the edges and altitude are divided proportionally, (b) the section is a polygon similar to the base.

7 Prove that the transverse sections of a prism made by parallel planes are equal polygons.

8 Find an expression for the volume of a sphere inscribed in a cube whose edge is \( a \).

9–10 Given the volume \( V \) and the height \( h \) of a regular hexagonal prism, find \( a \), one side of the base.

11–12 Find the surface and volume of the frustum of a pyramid whose lower base is 10 inches square, upper base 6 inches square and altitude 15 inches.

13 Write the formula for the convex surface of a cone; the convex surface of a cylinder; the surface of a sphere.

14–15 An equilateral triangle whose side is \( a \) revolves about one of its sides as an axis; find the surface and volume generated.