3. The shadow cast on the ground by a vertical rod 5 feet high is 6½ feet in length. Find the height of a chimney whose shadow is 35 feet long. (Scale, $\frac{1}{10}$ inch to 1 foot.)

4. On a line 3·75 inches long as hypotenuse describe a right-angled triangle having one of its acute angles of 20°. Find a point within the triangle equidistant from all of its sides. On the shortest side of the triangle describe a heptagon. On the hypotenuse describe a parallelogram having an altitude of $\frac{7}{8}$ inch and one of its angles equal to the larger of the acute angles of the triangle. Describe a circle of $\frac{1}{2}$ inch radius to touch the remaining side of the triangle at its middle point.

5. Find the length of an edge of a square piece of cardboard whose area is equal to the area of what remains of a piece of cardboard 5 inches square after a piece 3 inches square has been removed from it.

6. A block of wood 2 inches square and 1 inch thick rests on the horizontal plane; it supports another square block $\frac{3}{16}$ inch high, the corners of whose base coincide with the middle points of the edges of the larger block. A square pyramid 2 inches high is placed on the smaller block so that the corners of its base coincide with the middle points of the upper edges of that block. Draw a plan of the group and an elevation of it on a vertical plane making an angle of 25° with a long edge of the larger block.

7. The plan A B C D is given of a square one of whose corners, B, rests on the horizontal plane, the diagonal A C being parallel to the horizontal plane. Find the true length of a side of the square and the angle at which the surface of the square is inclined to the horizontal plane.