

10. In the preceding figure, what are the various triangles formed? At what various angles are the sides of the octagon at centre inclined to any side of the original octagon?

11. In the same figure, what angles alone occur? How many rhombuses are there in the figure?

12. Construct a regular octagon whose side is 35 millimetres. Test the accuracy of your construction.

13. With the angular points of a regular octagon as centres, describe eight circles of equal radii, so that each touches two others of the set.

14. With respect to how many lines is a regular hexagon symmetrical? Has it central symmetry?

15. With respect to how many lines is a regular octagon symmetrical? Has it central symmetry? Has a regular heptagon central symmetry?

16. In a circle of radius 37 millimetres inscribe a regular dodecagon.

17. What is the ratio of the sides of two regular hexagons, one inscribed in, and the other described about, the same circle?

18. ABCDEF is a regular hexagon. Show that its area is twice that of the equilateral triangle ACE.

19. In a circle the angle ABC is equal to the angle BCD. How are the chords AB, CD related?

20. An equiangular polygon inscribed in a circle has its alternate sides equal.

21. At B, a point on a circle, construct an angle ABC of  $108^\circ$  (the angle of a regular pentagon), the sides AB, BC not being equal. At C make BCD of  $108^\circ$ ; at D make CDE of  $108^\circ$ ; and so on. Shall we at length reach accurately the point A? If so, after how many times about the circle? Has a regular pentagon been described? Can other regular pentagons be obtained from the figure by producing lines or otherwise?