

(b) *Arc method* (fig. 5-37).

- (i) With centre  $B$  and radius  $AB$ , draw an arc cutting the line  $A6$ -produced at  $C$ .
- (ii) With centre  $C$  and the same radius, draw an arc cutting the line  $A5$ -produced at  $D$ .
- (iii) Find points  $E$  and  $F$  in the same manner.
- (iv) Draw lines  $BC$ ,  $CD$  etc. and complete the heptagon.

**Method II: General method for drawing any polygon** (fig. 5-38):

- (i) Draw a line  $AB$  equal to the given length.
  - (ii) At  $B$ , draw a line  $BP$  perpendicular and equal to  $AB$ .
  - (iii) Draw a line joining  $A$  with  $P$ .
  - (iv) With centre  $B$  and radius  $AB$ , draw the quadrant  $AP$ .
  - (v) Draw the perpendicular bisector of  $AB$  to intersect the straight line  $AP$  in 4 and the arc  $AP$  in 6.
- (a) A *square* of a side equal to  $AB$  can be inscribed in the circle drawn with centre 4 and radius  $A4$ .
  - (b) A regular *hexagon* of a side equal to  $AB$  can be inscribed in the circle drawn with centre 6 and radius  $A6$ .
  - (c) The mid-point 5 of the line 4-6 is the centre of the circle of the radius  $A5$  in which a regular *pentagon* of a side equal to  $AB$  can be inscribed.
  - (d) To locate centre 7 for the regular *heptagon* of side  $AB$ , step-off a division 6-7 equal to the division 5-6.
    - (i) With centre 7 and radius equal to  $A7$ , draw a circle.
    - (ii) Starting from  $B$ , cut it in seven equal divisions with radius equal to  $AB$ .
    - (iii) Draw lines  $BC$ ,  $CD$  etc. and complete the heptagon.

Regular polygons of any number of sides can be drawn by this method.

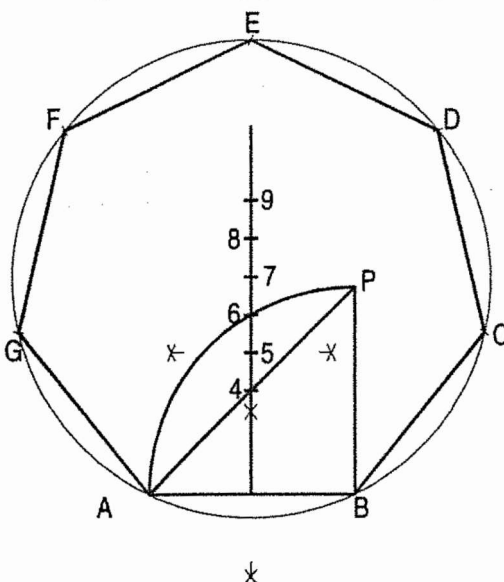


FIG. 5-38

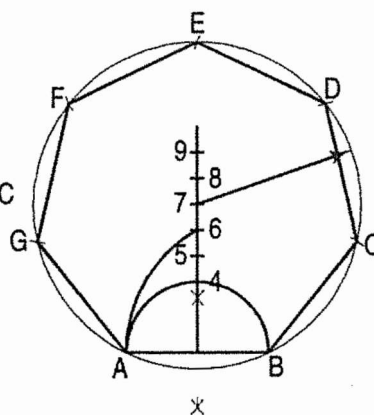


FIG. 5-39

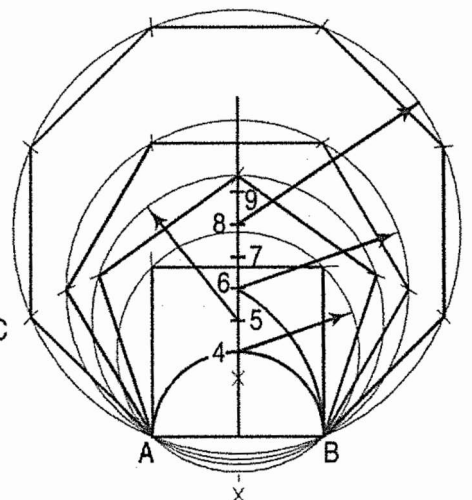


FIG. 5-40