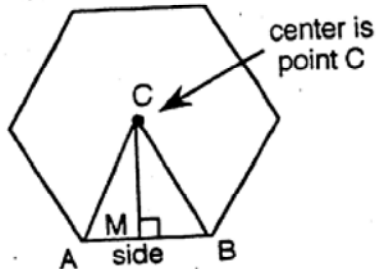


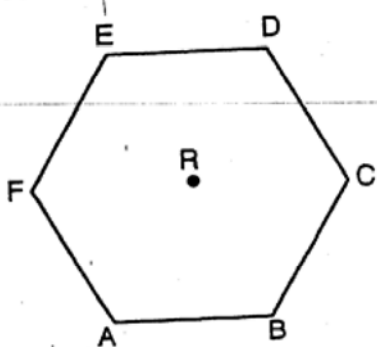
Area of Regular Polygons

INTRODUCTION:



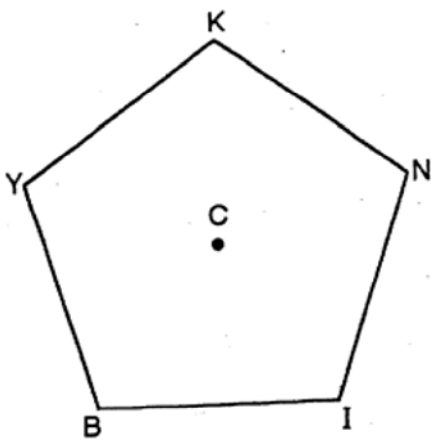
- center** - center of the circumscribed circle (pt. C)
- radius** - segment from the center to a vertex of the polygon (\overline{CA})
- side** - any segment joining two consecutive vertices (\overline{AB})
- central angle** - angle formed by two consecutive radii ($\angle ACB$)
- apothem** - segment from the center to a midpoint of a side (\overline{CM})

1.



- a. Connect the center to all vertices.
- b. Without using a protractor, find the measure of a central angle.
- c. Connect the center to the midpt. of side \overline{AB} . Label midpt. M.
- d. What is this segment called?
- e. Without using a protractor, find the measure of $\angle ARM$.
- f. If \overline{AB} is 8 cm long, how long is \overline{AM} ?
- g. Use **special triangle** relationship to find the length of \overline{MR} .
- h. Find the area of triangle ΔARB .
- i. Find the area of the regular hexagon.

2.



- a. Connect the center to all vertices.
- b. Without using a protractor, find the measure of the central angle.
- c. Connect the center to the midpt. of \overline{IN} . Label the midpt. M.
- d. Without using a protractor, find the measure of $\angle ICM$.
- e. If \overline{IN} is 10 cm. long, how long is \overline{IM} ?
- f. Use **trigonometry** to find the length of \overline{CM} .
- g. Find the area of ΔICN .
- h. Find the area of the pentagon.