4) ΔAFB is inscribed in (c) (A, F, and B are pts of (c) given)

So, $A\hat{F}B = 90°$ (inscribed angle facing diameter [AB] given)

→ but KAB is isosceles at K (proved)

So, $K\hat{A}B = K\hat{B}A = 30°$ (base angles in an isosceles Δ)

and F, K and B are collinear (given); FA given

(inscribed angle facing FB)

hence, FAB is semi-equilateral at F having a 30° and a 90° angles.

Thus, $FA = \frac{hyp}{2}$ (angle facing 30°)

$$= \frac{AB}{2} = \frac{2R}{2} \quad \text{(diameter} = 2r)$$

$$\boxed{FA = R\,cm}$$

5) (AM) is perpendicular to (IB) at M (proved)

(FB) is perpendicular to (AI) at F (proved)

(KO) is the perpendicular bisector of (AB) (proved)

They all intersect at K in Δ IAB (given - collinearity)

Thus, K is the orthocenter of Δ IAB

- IAB is an equilateral triangle since it has 2 angles 60° ($I\hat{A}B = M\hat{B}A = 60°$ - proved) So, the perpendicular bisector of [AB] pass through the vertex I.