1/4 Hence Δ's $IN E$ & $I\hat{M}E$ are congruent by RHA property.
Thus, $IN = IM$ (homologous elements)

3). In quadrilateral $INEM$ we have
1/2 $I\hat{N}E = I\hat{M}E = 90°$ (proved).
hence quad is formed of 2 right Δ's sharing same hypotenuse $[IE]$.
1/2 Thus, pts I, N, E & M belong to same circle whose diameter is the common hypotenuse $[IE]$ & center the midpt of $[IE]$.

4a). (C) is a circle of center E & radius $[EM]$.
1/2 $\begin{cases} E \text{ is a pt on } [It) \text{, the bisector of } x\hat{I}y \text{ (given)} \\ N \,\&\, M \text{ are orth. projections of } E \text{ on } [Ix) \,\&\, [Iy) \text{ resp. (given)} \end{cases}$

1/2 then, E is equidistant from M & N
hence, EN is a radius of (C).

$IN = IM$ (proved)
1/2 Thus, (IN) & (IM) are tangents to (C) at N & M
(Tangent theorem: Exterior pt from which two tangents are drawn to a circle is equidistant from pts of tangencies).

b) In Δ INM we have
1/4 $M\hat{I}N = 60°$ (given).
1/4 $IN = IM$ (proved)
1/4 Thus, Δ INM is equilateral
1/4 (having two equal sides and 60° $\measuredangle$)