Thus, I, K and O are collinear.

6) - (EA) is tangent to (c) at A (proved)
and (EG) is tangent to (c) at G (given)
So, (EO) is the bisector $G\hat{O}A$ (tangent theorem ① : the line joining the exterior pt. and the center is the bisector of the central angle)
and E is equidistant from G and A (tangent theorem ② : the exterior pt. is equidistant from the 2 pts of tangency).
- (JG) is tangent to (c) at G (given)
(JB) is tangent to (c) at B (given)
So, (JO) is the bisector of $G\hat{O}B$ (tangent theorem ①)
and J is equidistant from G and B (tangent theorem ②)
→ Then $EG = EA$
and $JG = JB$
but $EJ = JG + GE$ (J, G, and E are collinear)
Thus, $EJ = JB + EA$ (by comparison)
→ $E\hat{O}B = E\hat{O}G + G\hat{O}B$ (adjacent supplementary angles)
Then, $E\hat{O}J = 90°$ (angle formed between the bisectors of 2 adjacent supplementary angles is 90°)
Thus, EOJ is right at O.

7) a) $F\hat{B}A$ is an inscribed angle intercepting arc $\overset{\frown}{FA}$ (given) So, mes $\overset{\frown}{FA} = 2F\hat{B}A$
$= 2(30°)$ (proved)
$= 60°$.
→ IAB is equilateral (proved) and (FB) is a height