3 In Δ ABN we have:

(¼) (OF) parallel to (AN) (given)

& O is center of (C) of diameter [AB] (given)

(¼) then O is midpt of [AB]

(¼) Thus, F is mid pt of [BN] (by converse of mid pt theorem in any Δ)

4) a) In quadrilateral AIBN we have

I is the pt of intersection of (C) & (AM) (given)

So, I is a pt on (C) of diameter [AB]

(¼) then, $\hat{AIB} = 90°$ (inscribed angle facing diameter)

(¼) & $\hat{IAN} = 90°$ (proved

hence, (AN) is parallel to (IB) (st. lines held by equal corresponding angles)

(¼) Thus, ANBI is a right trapezoid

having a pair of parallel sides & a leg as a common height for both bases.

b) In Δ's AIB & FOB we have:

(½) $\hat{AIB} = 90°$ (proved)
$\hat{OBF} = 90$ (proved

So, $\hat{AIB} = \hat{OBF}$ (by comparison)

(½) (IB) // (AN) (proved)
(EF) // (AN) given)

So, (EF) is parallel to (IB) (A pair of st. lines parallel to same st. line are parallel)

hence, $\hat{FOB} = \hat{IBA}$ (alt. interior angles held by parallel st. lines)

Thus, Δ's AIB & FOB are similar by Angle-Angle postulate.