

$\Delta OPA$  is isosceles at  $O$  (proved)

So,  $\hat{OPA} = \hat{OPA}$  (base angles in an isosceles  $\Delta$ )

Thus,  $\hat{POA} = 180^\circ - 2\hat{OPA}$  (sum of angles in a  $\Delta$  is  $180^\circ$ )

b)  $\hat{OPM} = 90^\circ$  (proved)

So,  $\hat{OPA} = 90^\circ - \hat{OPM}$ .

but  $\hat{POA} = 180^\circ - 2\hat{OPA}$  (proved)

Then,  $\hat{POA} = 180^\circ - 2(90^\circ - \hat{OPM})$  (by substitution)

Thus,  $\hat{POA} = 2\hat{OPM}$ .

c)  $(OO')$  is the perpendicular bisector of  $[PA]$  (proved)

$(OO')$  cuts  $(c')$  at  $M$  (given)

Thus,  $M$  is the midpt of the major arc  $PA$ .

