Problem 211

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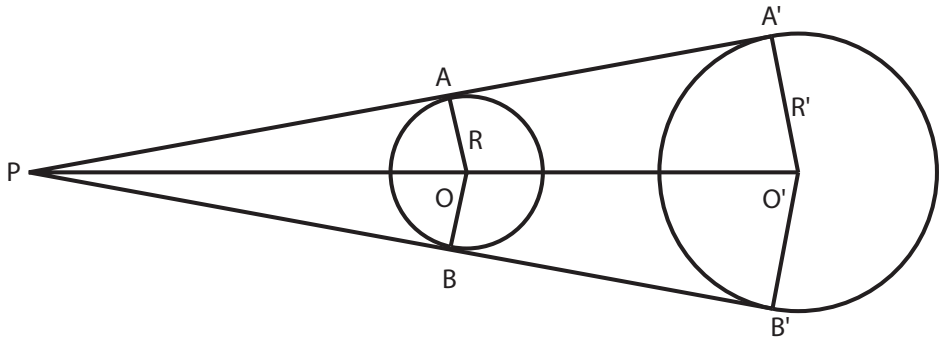

Given:

PA' and PB' are tangent to the circles of radii R and R', respectively
PO' intersects the circle centers O and O'
PO = d, PO' = d'
OA = R and O'A' = R'

Show that:

1. triangles POA and POB are congruent,
2. angles APO and BPO are equal
3. R/R' = d/d'

If R = 1.738 x 10(6) meters. R' = 6.960 x 10(8) meters,
d = 3.844 x 10(8) and d' = 1.496 x 10(11) meters

4. Do theses values satisfy Rd' = R'd ?
5. Can you think of a real situation for these numbers to apply?
6. What value, d*, must d become to make R/R' = d*/d' ?
7. Determine angle A'PB'
8. Determine angle APB
9. If d were to decrease at the rate of 3.8 x 10(-2) meters per year, how many years would it take for d to have the value of d*? What physical significance does this time have?