

Problem 7) Let a total charge $2Q$ be distributed in a sphere of radius R , with the charge density given by $(r) = kr$, where r is the distance from the center. Two charges A and B , of $-Q$ each, are placed on diametrically opposite points, at equal distance, a , from the center. If A and B do not experience any force, then :

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(1) $a = 3R/2^{1/4}$

(2) $a = 2^{-1/4}R$

(3) $a = 8^{-1/4}R$

(4) $a = R/3$

Ans) 3