

A light inextensible string AB passes through two small holes C and D in a smooth horizontal table where AC = 3a and DB = a. A particle of mass m is attached at the end A and moves in a horizontal circle with angular velocity ω . A particle of mass $\frac{3}{4}m$ is attached to the end B and moves in a horizontal circle with angular velocity B0. AC1 makes an angle B2 with the horizontal (see diagram).

Find the value of k .	[7]
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