

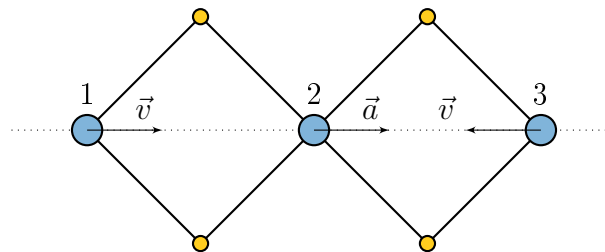


We don't need this kind of hockey!
N. Ozerov

Hockey!

A light hinge structure with three massive hockey pucks is hit by a fourth hockey puck at a speed of v_0 , as shown in the figure. The impact is central, the masses of all four hockey pucks are the same, the construction is symmetrical, and the lengths of all sections of the structure are the same.

1. Find the speeds of all four pucks immediately after the impact, if the impact is elastic, and there was no loss of energy in the hinge structure during the impact. (5 points)
2. Let there be friction between the pucks and the surface with the coefficient μ . Which of the bodies 1, 2, 3 will stop first and after which time? (2 points)
3. Under which conditions pucks 1, 2, 3 will not collide with each other? (3 points)



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First hint — 18.05.2020 14:00 (Moscow time)

Second hint — 20.05.2020 14:00 (Moscow time)

Final of the fourth round — 22.05.2020 22:00 (Moscow time)