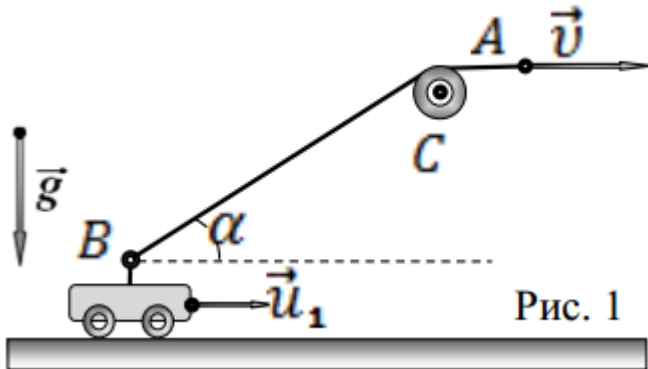


1-qism: Har bir topshiriq 7 balldan baholanadi

1. 1-Qism. «Baland blok»

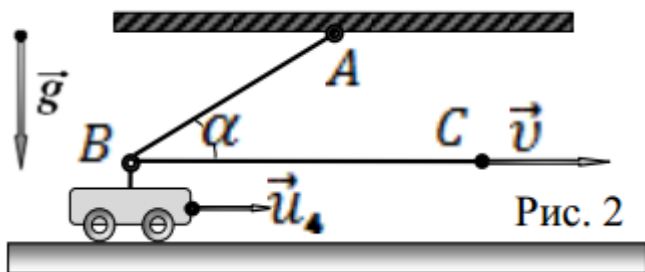
Birinchi rasmdagi tuzilmada ip gorizantal tekislikdan qandaydir balandlikda joylashgan qo'zg'almas blok C oraqli o'tkazilgan. Ipnig A uchi gorizantal yo'nalishda o'ngga o'zgaras v tezlik bilan tortiladi.



Ipnig A uchini tezligi v ni ma'lum deb aravachaning BC ip gorizont bilan α burchak hosil qilgan momentdagi tezligi $u_1(\alpha)$ ni toping.

2-Qism «Qo'zg'aluvchan blok»

Ikkinchi rasmdagi tuzilmada ABC ipning bir uchi shiftga mahkamlangan va ip aravachaga mahkamlangan kichkina B blok orqali o'tkazilgan, ipning C uchi gorizantal yo'nalishda o'ngga o'zgaras v tezlikda tortiladi.



Ipnig C uchini tezligi v ni ma'lum deb aravachaning AB ip gorizont bilan α burchak hosil qilgan momentdagi tezligi $u_4(\alpha)$ ni toping.

2-qism: Har bir topshiriq 7 balldan baholanadi

Ikkita V hajmli idishlarda geliy gazi qamalgan. Birinchi idishdagi geliy atomlarining tezligi v_1 ikkinchisniki esa v_2 va birinchi idishdagi geliy atomlari soni ikkinchi idishdagi atomlar sonidan N marta katta. Agar idishlar ingichka nay bilan tutashtirilsa aralashma gaz atomlari tezligi qanday bo'ladi?

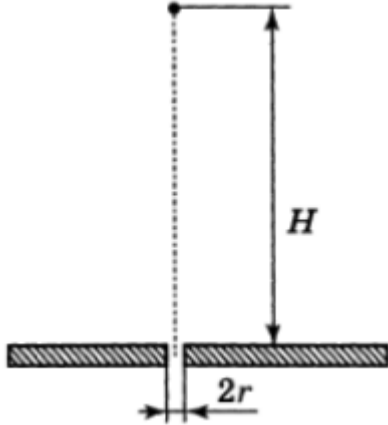
3-qism: Har bir topshiriq 10 balldan baholanadi

1. Gorizantal silliq stolda M massali L uzunlikdagi doska yotibdi, doska ustida m massali shayba bor. Shayba va doska orasidagi ishqalanish koeffitsienti k ga, stol va doska orasidagi esa nolga teng.
 - a) Shaybaga doskaning L uzunlikli tomoni bo'ylab qanday eng kichik tezlik berilsa u doskadan ajraladi?
 - b) a banddagidek tezlik berilganda shayba qancha vaqtda doskaning ikkinchi chetiga yetib boradi?



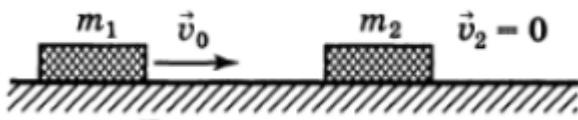
4-qism: Har bir topshiriq 10 balldan baholanadi

1. Kichkina zaryadlangan sharcha zaryadlangan tekislikdan H balandlikda muvozanatda turibdi. Agar tekislikning shundoqqina sharcha ostidagi qismidan rasmdagidek r ($100r=H$) radiusli disk kesib tashlansa, sharcha qanday tezlanish oladi?

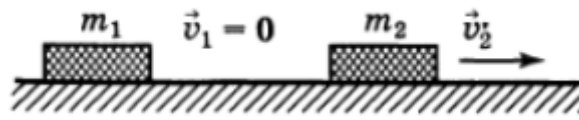


5-qism: Har bir topshiriq 16 balldan baholanadi

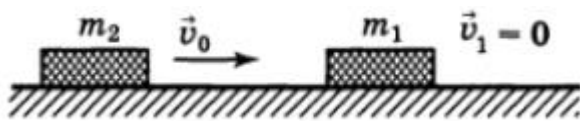
Rasmda silliq gorizantal stolda yotgan ikkita shaybaning o'zaro to'qnashishi ko'rsatilgan. Agar $v_2' = v_2''$ ekanligi ma'lum bo'lsa. Shaybalar massalari nisbatini toping.



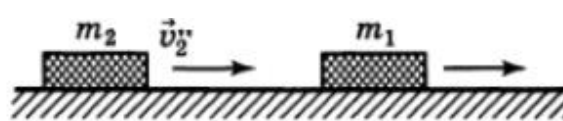
1-hol To'qnashishgacha



1-hol To'qnashishdan so'ng.



2-hol To'qnashishgacha



2-hol To'qnashishdan so'ng.