

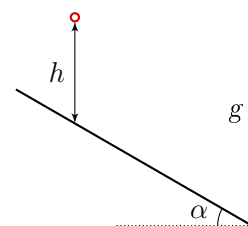


*So what are you saying, physics?
Cooling down of relations between people,
as a result of friction between them.*

Stanisław Jerzy Lec

Uymin's factor

Point particle hits the inclined plane from the height h without the initial velocity. Point's collisions with the plane are absolutely elastic. Coefficient of friction between the point and the plane is μ .



1. During the entire time of movement the point reaches the height of the first collision three times (including the first one). Find the angle α between the inclined plane and the horizon in the following cases:
 - a) (2,5 points) $\mu = 0$;
 - b) (2,5 points) $\mu > \operatorname{tg} \alpha$.
2. Let α be equal to $\pi/6$. Find the displacement of the point particle in time $t \gg \sqrt{\frac{h}{g}}$ in the following cases:
 - a) (2,5 points) $\mu = 0,5$;
 - b) (2,5 points) $\mu = 0,8$.

Note: an absolutely elastic collision with the friction is the collision, in which the component of the momentum perpendicular to the surface changes to the opposite one during the collision.

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First hint — 03.05.2021 14:00 (GMT+3)

Second hint — 05.05.2021 14:00 (GMT+3)

End of the first tour — 07.05.2021 22:00 (GMT+3)