

AP Physics C

Lab: Determining the coefficient of static friction between a shoe and a floor and comparing our shoes to one another.

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Abstract

In our lab, we found the coefficient of static friction between our shoes and the ground(or in our case a board). We used meter sticks to determine the angle that we positioned the board when the shoes positioned on it first moved by finding the length of the board and the height from the ground to the top of the board at the time that the shoes first moved. We then tested all three types of shoes we had.

Hypothesis

We hypothesized that Owen Barry's Brooks would have the heighest coefficient of static friction, Ben Feuer's adidas running shoes would have the second highest coefficient of static friction, and Joey Casper's lifestyle Allbirds shoes would have the lowest coefficient of static friction, because of the apparent levels of grip on the bottom of the three shoes.

Data

Shoe	Length (m)	Height (m)	μ_s
Brooks	0.615	0.5089	1.474
Adidas	0.615	0.3263	0.6259
Allbirds	0.615	0.4757	1.220

Sample Calculations

$$\mu_s = \tan(\theta)$$

: while do

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Conclusion