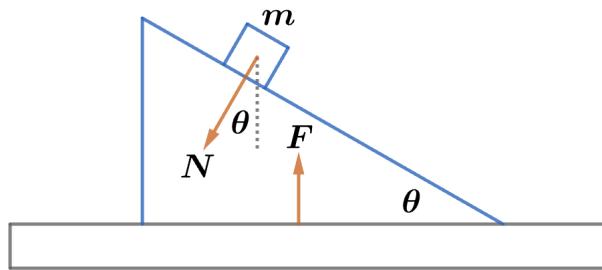


2024 F=ma Exam: Problem 5

Kevin S. Huang



Choosing the inclined plane as our system and balancing forces in the vertical direction,

$$F = N \cos \theta$$

Recall the normal force on a block sliding down an inclined plane is $N = mg \cos \theta$ so

$$F = mg \cos^2 \theta = mg \cos^2(\pi/6) = \frac{3mg}{4}$$

Thus, the answer is C.