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### Friction iPad Lab (Post Lab Assignment)

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# Friction iPad Lab

## Homework Sheet

Name: \_\_\_\_\_

A cardboard box containing books is given a quick shove along a horizontal floor. After it is released, the box slows to a stop at rate of  $3.4 \text{ m/s}^2$ .

1. Find the coefficient of kinetic friction between the floor and cardboard. Show your work.
  
2. In the same hallway, there is a ramp that makes a  $10^\circ$  angle with the horizontal. A different load of books in the same cardboard box is given a quick shove **down** the ramp.
  - a. Find the acceleration of this box as it travels down the ramp.
  - b. Is this box speeding up or slowing down? Explain how you can tell from your calculations.
  
3. In this hallway there is a second, steeper ramp. When the box filled with some books is given a quick shove down this ramp, the box maintains constant speed after it is released. What is the slope of the steeper ramp?