

Name _____ # _____

AP Physics 1

Section _____

[Box on Ramp with Friction](#) HW - 5 pts each

Full Sentences Only - Restate the question within the answer

1. The narrator makes a mistake and states that two forces are on the box. There are actually three. Name the three forces that act on the box in the video AND mention the direction of each, relative to the ramp.

2. What is the coordinate system used in this video (x and y) aligned with?

3. How did the narrator find the components of the weight force?

4. What is the equation for the weight component that acts:

a. Parallel to the ramp (Full Sentence Not Needed)

b. Perpendicular to the ramp? (Full Sentence Not Needed)

5. Look at the pseudo-free body diagram at 7:41. Given the relative sizes of the arrows, do you think the box is accelerating? Explain.

6. A boy puts a 10.0 kg wooden block on a wooden ramp and tilts it until the block finally slides. The minimum angle that finally causes the block was 30 degrees. If the boy put a 100. Kg block on the same ramp and performed the same experiment, would the block begin to move at an angle greater than, less than, or equal to the original? Why?

7. Finish this sentence so that it makes a correct statement:

In order for the box to accelerate down the ramp, the

_____ component of the weight force must be

_____ than the friction force on the box.