

Week 8 - Dynamics

Homework Procedure: Read pages specified in Honors Physics Essentials by Dan Fullerton. Questions labeled TQ will be questions about the text you read. These TQ's can be answered in one word, one phrase, or a complete sentence. Questions labeled CQ are conceptual questions and must be answered in complete sentences. Questions labeled QQ's are quantitative questions and the equation, substitution with units, and solve with units must be shown on your paper. CQ's and QQ's will be similar to the questions found in the Honors Physics Essentials textbook.

Read Pages 72-77 (Friction)

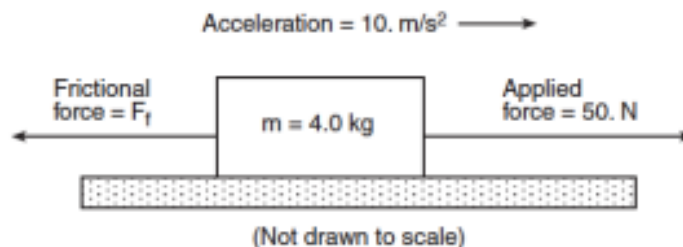
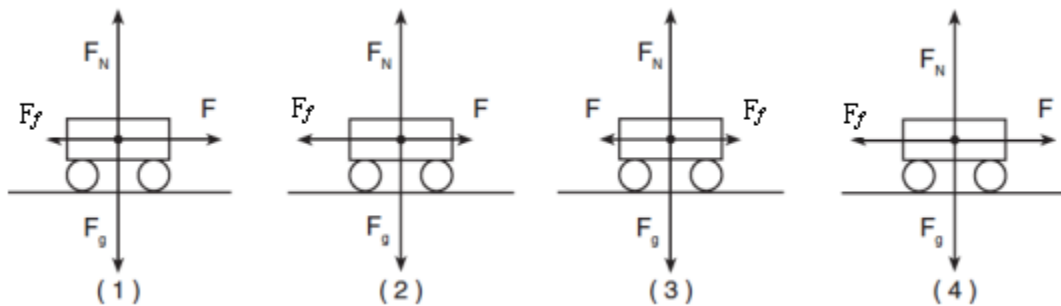
TQ17. Even though both accelerate at the same rate due to gravity, why do a tissue and a rock fall at different rates?

TQ18. What is the difference between kinetic friction and static friction?

TQ19. What is the coefficient friction a ratio of? And what is its symbol?

TQ20. What is the equation for the force of friction?

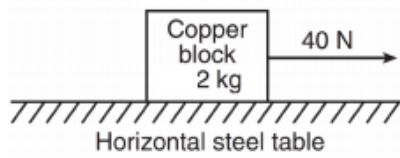
CQ21. Which vector diagram below shows the cart slowing down as it travels to the right on a horizontal surface?



QQ22. A 4.0 kg object is accelerating to the right at 10 m/s^2 . There is an applied force to the right of 50 N and an unknown frictional force.

- (A) What is the force of gravity acting on the object?
- (B) What is the normal force acting on the object?
- (C) What is the net force acting on the object?
- (D) What is the frictional force acting on the object?
- (E) What is the coefficient of friction of the surface?

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QQ23. A 2 kg copper block is being pushed on a rough steel table with a force of 40 N. The coefficient of friction between copper and steel is 0.36.

- (A) What is the weight of the copper block?
- (B) What is the normal force acting on the copper block by the steel table?
- (C) What is the force of friction?
- (D) What is the net force acting on the copper block?
- (E) What is the acceleration of the copper block?