Forces Homework Problems:
p67: #23, 31, 37, 46, 49

Problems taken from the school's old textbook:
Giancoli, D. (1980). *Physics*, 2nd Ed. Englewood Cliffs, NJ: Prentice Hall.

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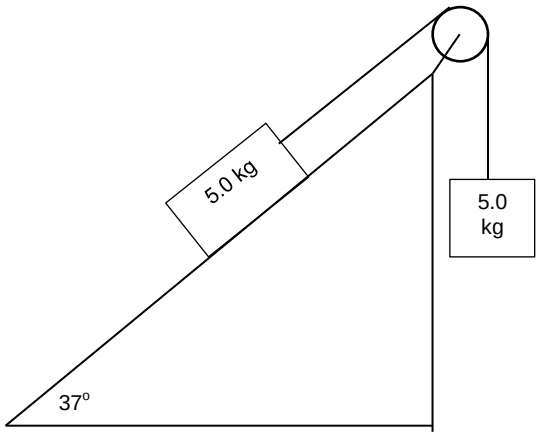
23. If the coefficient of kinetic friction between a 25-kg crate and the floor is 0.45, how much force is required to move the crate at a steady speed across the floor? How much force is required if μ_k is zero?

31. A box is given a push so that it slides across the floor. How far will it go, given that the coefficient of kinetic friction is 0.30 and the push imparts an initial speed of 3.0 m/s?

37. An 18.0-kg box is released on a 33.0^o incline and accelerates down the incline at 0.300 m/s^2. Find the friction force impeding its motion. How large is the coefficient of friction?

46. A flatbed truck is carrying a 2800-kg crate of bananas. If the coefficient of static friction between the crate and the bed of the truck is 0.55, what is the maximum rate the driver can decelerate when coming to a stop in order to avoid burying himself in squished bananas if the crate were to hit the cab?

49. What is the acceleration of the system shown in the diagram if the kinetic coefficient of friction is 0.15?



ANSWERS:

23. 110.25 N; if μ is zero and the crate is already moving, no force is required.
31. 1.53 m
37. 90.7 N; .613
46. 5.39 m/s^2
49. 1.37 m/s^2