

Question 1 - friction

Doug hits a hockey puck, giving it an initial velocity of 6.0 m/s. If the coefficient of kinetic friction between ice and puck is 0.05, how far will the puck slide before stopping?

- a. 19 m**
- b. 25 m**
- c. 37 m**
- d. 57 m**

Question 2 - friction

A horizontal force of 750 N is needed to overcome the force of static friction between a level floor and a 250 kg crate. What is the coefficient of static friction?

- a. 3.0**
- b. 0.15**
- c. 0.28**
- d. 0.31**

Question 3 - friction

A 100 kg box is placed on a ramp. As one end of the ramp is raised, the box begins to move downward just as the angle of inclination reaches 15° . What is the coefficient of static friction between box and ramp?

- a. 0.15**
- b. 0.26**
- c. 0.77**
- d. 0.95**

Question 4 - pulley

A 10 kg block and a 2.0 kg hanging mass are connected by a light string over a massless, frictionless pulley. What is the acceleration of the system when released?

- a. 2.5 m/s²**
- b. 6.5 m/s²**
- c. 7.8 m/s²**
- d. 9.8 m/s²**

Question 5 - pulley

A 9 kg hanging weight is connected by a string over a pulley to a 5 kg block sliding on a flat table. If the coefficient of sliding friction is 0.2, find the tension in the string.

- a. 18.9 N**
- b. 24.0 N**
- c. 32.0 N**
- d. 37.8 N**

Question 6 - circular motion

At what angle (relative to the horizontal) should a $r = 52$ m curve be banked if no friction is required to prevent the car from slipping when traveling at 12 m/s?

- a. 28°**
- b. 32°**
- c. 16°**
- d. 10°**

b.) Which angle do you need for $v = 20$ m/s without friction ?

c.) How much friction do you need for $v = 12$ m/s in an unbanked $r = 52$ m curve ?