

Dynamics Part 2 Review Questions

1. A spring has a constant of 875 N/m. What hanging mass will cause this spring to stretch 4.50 m? (402 kg)
2. A hanging 7.5 kg object stretches a spring 1.1 m. What is the spring constant? (67 N/m)
3. A wagon is being pulled by a rope that makes a 25° angle with the ground. The person is pulling with a force of 103 N along the rope. Determine the horizontal and vertical components of the vector. (93 N, 44 N)
4. A 17 kg object on a frictionless inclined plane accelerates at 9.28 m/s^2 . What is the angle of the inclined plane? (71°)
5. A 55 kg skier is on a 20.0° slope. Assume that she starts from rest. If she travels 147 m in 10.0 s, what is the force of friction between the skis and the snow? (23N)
6. Rajesh is pushing a 15 kg box along the ground. He is pushing downward at an angle of 20.0° as measured to the horizontal with a force of 35 N. The box accelerates to the left at a rate of 1.2 m/s^2 . Determine the size of the frictional force acting on the box. (15 N)
7. A 170 kg crate sits on a flat surface. A rope is tied to the crate and the crate is pulled across a frictionless surface with the rope making a 24° angle above the horizontal. If the applied force in the horizontal is 85 N, what is the normal force acting on the box?
(1600 N)