

$$\Sigma F=ma$$

$$W=mg$$

$$F_f=\mu F_N$$

Physics

Unit 3: forces – Review Part I

Name: _____ Block: _____

Solve the following problems. Use Free Body Diagrams when appropriate. You **must show your work**.

1. In order to keep an object weighing 30 N moving at a constant speed along a horizontal surface, a force of 5 N is required. What is the force of friction between the surface and the object?
2. A net force of 7.2 N accelerates a 25 kg scooter across a level parking lot. What is the magnitude of the scooter's acceleration?
3. A wagon with a weight of 200.0 N is accelerated across a level surface at 1.5 m/s^2 . What net force acts on the wagon?
4. A 65 kg crate is pulled at a *constant speed* horizontally across the floor by a 150 N force. What is the coefficient of friction?
5. An elevator weighing $3.00 \times 10^4 \text{ N}$ is supported by a steel cable. What is the tension in the cable when the elevator is **accelerated** upward at a rate of 2.50 m/s^2 ?

