

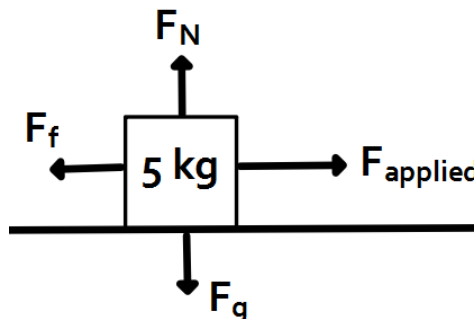
**Self-Assessment (Forces)**

$$F_g = W = mg$$

$$(g = 10 \text{ m/s}^2 \text{ on Earth})$$

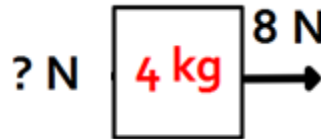
$$F_{\text{net}} = ma$$

- The SI unit of force is the  
(A) Meter                      (B) Joule                      (C) Kilogram                      (D) Newton
- When an unbalanced force acts on an object,  
(A) The inertia of the object increases.                      (C) The object's motion does not change.  
(B) The weight to the object decreases.                      (D) The object accelerates.
- When there is no net force acting on an object, the object could be  
I.        At rest.  
II.       Continuing at a constant velocity.  
III.      Accelerating  
(A) I only                      (B) II only                      (C) III only                      (D) I and II only
- The forces acting on a falling leaf are  
(A) Weight and rolling friction.                      (C) Gravity and friction.  
(B) Air resistance and friction                      (D) Gravity and air resistance
- The property of matter that resists change in motion is called  
(A) Friction                      (B) Inertia                      (C) Gravity                      (D) Weight
- An orange might roll off a cafeteria tray when you stop suddenly because of  
(A) The friction forces on the orange.                      (C) The orange's inertia  
(B) The balanced forces on the orange.                      (D) The centripetal force acting on the orange.
- The inertia of an object depends upon the  
(A) Objects volume                      (B) Object's mass                      (C) Object's density                      (D) Object's color
- A 30 kg object mass is accelerating at  $2 \text{ m/s}^2$ . What is the object's net force?  
(A) 15 N                      (B) 30 N                      (C) 45 N                      (D) 60 N

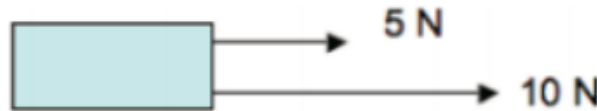


- The free body diagram above shows what type of scenario?  
(A) A box being pushed to the right on ice.                      (C) A box being accelerated upwards by lifting.  
(B) A box falling from the top of a building.                      (D) A box being pushed to the right on a carpet

10. What is the net force on an object that has 300 N pulling down and 100 N pulling up?  
 (A) 100 N (B) 200 N (C) 300 N (D) 500 N
11. What is the weight of a 40 kg person?  
 (A) 10 N (B) 40 N (C) 80 N (D) 400 N
12. What is the force of gravity on a 4 kg mass?  
 (A) 4 N (B) 10 N (C) 20 N (D) 40 N
13. What is the acceleration on a 5 kg object that has a force of 80 N to the right and 50 N to the left?  
 (A) 5 m/s<sup>2</sup> (B) 6 m/s<sup>2</sup> (C) 30 m/s<sup>2</sup> (D) 150 m/s<sup>2</sup>
14. A 400 N girl standing on a dock exerts a force of 100 N on a 50,000 N sailboat as she pushes it away from the dock. How much force does the sailboat exert on the girl?  
 (A) 25 N (B) 100 N (C) 400 N (D) 50,000 N



15. A 4 kg block shown above is pushed at a constant velocity with a force applied of 8 N to the right. How much force of friction to the left is there?  
 (A) 2 N (B) 4 N (C) 8 N (D) 16 N

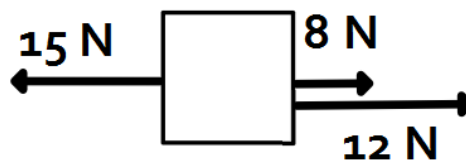


16. A 5 N force and a 10 N force act to the right on an object. If the block accelerates at 3 m/s<sup>2</sup>, what is the mass of the object?  
 (A) 2 kg (B) 3 kg (C) 5 kg (D) 15 kg

17. A 30 kg object that is accelerated at 6 m/s<sup>2</sup> has a net force acting up it of  
 (A) 5 N (B) 30 N (C) 180 N (D) 240 N

18. What is the mass of a 2 kg object on the Jupiter? (g on Jupiter = 30 m/s<sup>2</sup>)  
 (A) 2 kg (B) 10 kg (C) 20 kg (D) 60 kg

19. What is the weight of a 2 kg object on Jupiter? (g on Jupiter = 30 m/s<sup>2</sup>)  
 (A) 2 N (B) 10 N (C) 20 N (D) 60 N



20. What is the net force on the object above?  
 (A) 5 N left (B) 5 N right (C) 10 N left (D) 10 N right