

McRoberts Secondary

Forces Quiz 2025-10-27

Personal Data

Family Name:	
Given Name:	
Signature:	
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Registration Number

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In this section **no** changes or modifications must be made!

Scrambling

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Exam ID(11)

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Please mark the boxes carefully: Not marked: or

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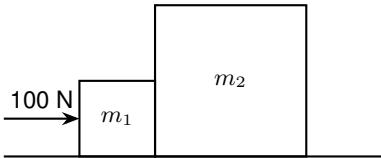
Only clearly marked and positionally accurate crosses will be processed!

Answers 1 - 15

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a b c d

1. The gravitational force exerted by a large body, such as the Earth, is called
 - a. inertial mass
 - b. weight
 - c. gravitational mass
 - d. gravitational field strength
2. A box, of mass M , is suspended by a string from the ceiling inside an elevator. The elevator is moving upward, but slowing down. The tension in the string is
 - a. less than Mg .
 - b. equal to Mg .
 - c. greater than Mg .
 - d. zero.
3. Why is a greater force needed to start moving a heavy box from rest than to keep pushing it with constant velocity? In the choices below, μ_k is the coefficient of kinetic friction and μ_s is the coefficient of static friction.
 - a. The normal force is greater when the box is at rest.
 - b. $\mu_k < \mu_s$
 - c. $\mu_s < \mu_k$
 - d. The inertia of the box is greater when it is at rest.
4. What force is needed to keep a 96-kg box moving at a constant velocity across a warehouse floor if the coefficient of kinetic friction between the box and the floor is 0.37?
 - a. 440 N
 - b. 300 N
 - c. 350 N
 - d. 180 N
5. A person stands on top of a box on the ground. What is the magnitude of the normal force that the ground applies to the box?
 - a. 617 N
 - b. 157 N
 - c. 704 N
 - d. 931 N
6. What is the net force on a person who is standing in an elevator moving up with a constant velocity of 10.00 m/s?
 - a. It depends on the mass of the person.
 - b. 10.00 N, down
 - c. 10.00 N, up
 - d. 0 N
7. A net force of 60 N is applied to an object, and it accelerates at 65 m/s/s in the direction of the applied force. What is the mass of the object?
 - a. 0.77 kg
 - b. 0.92 kg
 - c. 1.1 kg
 - d. 3900 kg

8. In a rugby game, Bob (mass = 94 kg) tackles Joe (mass = 99 kg) and knocks Joe to the ground. During the collision who applied the greater force on whom?
- Bob applied a greater force on Joe (than Joe did on him).
 - Joe applied a greater force on Bob (than Bob did on him).
 - Bob and Joe applied the same magnitude force on each other.
 - It depends on the relative speeds of Bob and Joe.
9. A box of slides on the floor in the $+x$ direction. It slows down and comes to a stop with a constant acceleration of -5.95 m/s^2 . What is the coefficient of kinetic friction between the object and the floor?
- 0.898
 - 0.442
 - 0.503
 - 0.607
10. Which has greater inertia? A bowling ball of mass 2 kg traveling at 5 m/s or a bullet of mass 0.02 kg traveling at 500 m/s?
- The bullet.
 - The bowling ball and the bullet have the same inertia.
 - The bowling ball.
 - Not enough information to determine.
11. Two boxes are in contact with each other on a frictionless table. The mass of the first box is $m_1 = 18 \text{ kg}$ and the mass of the second box is $m_2 = 162 \text{ kg}$. If you push on the first box with a horizontal force of 100 N to the right, then the second box will experience a net force of
- 
- 113 N
 - 90 N
 - 100 N
 - 121 N
12. A box, of mass M , is suspended by a string from the ceiling inside an elevator. The elevator is traveling downward with a constant speed. The tension in the string is
- less than Mg .
 - equal to Mg .
 - greater than Mg .
 - impossible to determine without knowing the speed.
13. An object weight 86 N on Earth. What is its mass?
- 8.8 kg
 - 86 kg
 - 840 kg
 - 6.6 kg

14. The mass of an object is 40 kg. What is its weight on Earth?
- a. 410 N
 - b. 40 N
 - c. 390 N
 - d. 580 N
15. A person of mass 65 kg pushes on a wall with 83 N of force. What is the magnitude of the force that the wall exerts on the person?
- a. 8.5 N
 - b. 83 N
 - c. 640 N
 - d. 810 N