

2B physics Laws of Newton

1. A skydiver of mass 80 kg falls vertically with a constant speed of 50 m s^{-1} . The upward force acting on the skydiver is approximately
- A. 0 N.
 - B. 80 N.
 - C. 800 N.
 - D. 4000 N.

(__/2p)

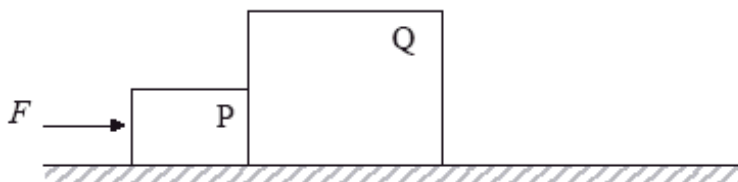
2. The diagram shows a girl attempting (but failing) to lift a heavy suitcase of weight W . The magnitude of the vertical upwards pull of the girl on the suitcase is P and the magnitude of the vertical reaction of the floor on the suitcase is R .



Which equation correctly relates W , P and R ?

- A. $W = P + R$
 - B. $W > P + R$
 - C. $W < P + R$
 - D. $W = P = R$
3. Stephen pushes two boxes P and Q, that stay in contact, along a rough table, with a force F of 30 N. Box P has a mass of 2.0 kg and box Q has a mass of 4.0 kg. Both boxes move with constant speed.

(__/2p)



The resultant force on box Q is

- A. 0 N.
- B. 5.0 N.
- C. 15 N.
- D. 30 N.

(__/2p)

4. A student is sitting on a chair. One force that is acting on the student is the pull of gravity. According to Newton's third law, there must be another force which is
- A. the upward push of the chair on the student.
 - B. the downward force on the student.
 - C. the downward push of the chair on Earth.
 - D. the upward force on Earth.

(__/2p)

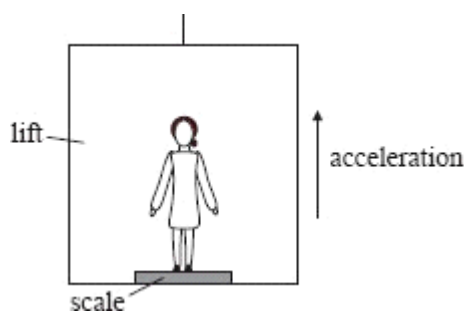
5. If a moving object is subject to a constant force, which of the following can be correctly deduced from Newton's first law?
- A. The object continues to move with a changing velocity.
 - B. The object continues to move with a constant velocity.
 - C. The object continues to move with a changing direction.
 - D. The object continues to move in the same direction.

(__/2p)

6. A lamp of weight W is suspended by a wire fixed to the ceiling. With reference to Newton's third law of motion, the force that is equal and opposite to W is the
- A. tension in the wire.
 - B. force applied by the ceiling.
 - C. force exerted by the lamp on the Earth.
 - D. force exerted by the Earth on the lamp.

(__/2p)

7. Mandy stands on a weighing scale inside a lift (elevator) that accelerates vertically upwards as shown in the diagram below. The forces on Mandy are her weight W and the reaction force from the scale R .

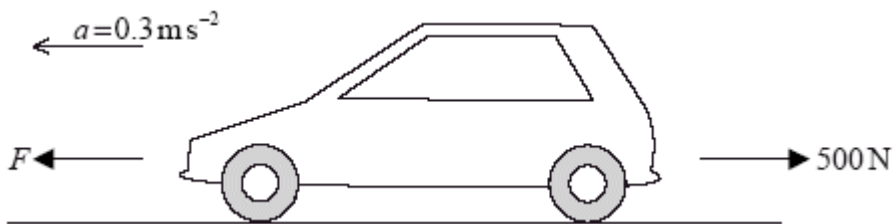


The reading of the scale is

- A. $R + W$.
- B. W .
- C. R .
- D. $R - W$.

(__/2p)

8. A car of mass 1000 kg accelerates on a straight, flat, horizontal road with an acceleration $a = 0.3 \text{ m s}^{-2}$.
The driving force F on the car is opposed by a resistive force of 500 N.



The net (resultant) force on the car is

- A. 200 N.
B. 300 N.
C. 500 N.
D. 800 N.
9. A spacecraft orbits Earth. An astronaut inside the spacecraft feels “weightless” because
- A. the gravitational field in the spacecraft is negligible.
B. the Earth exerts equal forces on the spacecraft and the astronaut.
C. the spacecraft and the astronaut have the same acceleration towards the Earth.
D. the spacecraft and the astronaut exert equal and opposite forces on each other.
10. Which of the following is the condition for a body to be in translational equilibrium?
- A. The resultant force on the body in any direction is zero.
B. The velocity of the body in any direction is zero.
C. No external force is acting on the body.
D. No work is done on the body.

(__/2p)

(__/2p)

(__/2p)