

Force, Acceleration & Inertia

Questions for GCSE Physics



1. What is meant by the term *resultant force*?

2. What is meant by the term *inertia*?

3. What is the unit of force?

4. What is Newton's Second Law of motion?

5. If the resultant force on an object is zero, what happens to the motion of the object.



6. A car has a mass of 1000 kg and accelerates at 2 m/s^2 . Calculate the resultant force.

7. A bus with a mass of 12,000 kg accelerates at 1.5 m/s^2 . Find the resultant force.

8. A motorbike experiences a resultant force of 1800 N and has a mass of 300 kg. Find its acceleration.

9. A lorry accelerates at 0.8 m/s^2 when a resultant force of 6400 N acts on it. What is its mass?

10. A cyclist and bicycle have a total mass of 75 kg. If they accelerate at 1.2 m/s^2 , what is the resultant force?



11. A 900 kg car experiences a forward thrust of 2700 N and a resistive force of 900 N. Calculate its resultant force and acceleration.

12. A rocket of mass 2000 kg lifts off with a thrust of 30,000 N. The weight of the rocket is 20,000 N. Calculate its resultant force and acceleration.

13. A ball of mass 0.5 kg is thrown horizontally with a force of 10 N. Ignoring air resistance, find its horizontal acceleration.

14. An aircraft of mass 80,000 kg experiences a total forward thrust of 240,000 N and an air resistance of 160,000 N. Find the resultant force and the aircraft's acceleration.

15. A car has a mass of 1500 kg. When it slows from 20 m/s to 10 m/s in 2 seconds, calculate the deceleration and then the resultant braking force.

