Force = mass x acceleration

1. Calculate the force needed to accelerate a car of mass 1000 kg by 3 m/s^2.
2. Calculate the force needed to accelerate a bicycle of mass 20 kg by 4 m/s^2.
3. Calculate the force needed to accelerate a car of mass 1500 kg by 5 m/s^2.
4. Calculate the force needed to accelerate a bus of mass 4000 kg by 2 m/s^2.
5. Calculate the force needed to accelerate a train of mass 20 000 kg by 0.5 m/s^2.

6. Calculate the force needed to accelerate a toy car of mass 100 g by 6 m/s^2.
7. Calculate the force needed to accelerate a ball of mass 200 g by 15 m/s^2.
8. Calculate the force needed to accelerate a bat of mass 500 g by 4 m/s^2.
9. Calculate the force needed to accelerate a bee of mass 2 g by 20 m/s^2.
10. Calculate the force needed to accelerate a flea of mass 0.005 g by 30 m/s^2.

11. Calculate the acceleration of a car of mass 1000 kg when driven by a force of 20 000 N.
12. Calculate the acceleration of a bus of mass 5000 kg when driven by a force of 30 000 N.
13. Calculate the acceleration of a ball of mass 0.3 kg when driven by a force of 21 N.
14. Calculate the acceleration of a train of mass 30 000 kg when driven by a force of 15 000 N.
15. Calculate the acceleration of a toy car of mass 50 g when driven by a force of 4 N.

16. Calculate the mass of a car if a force of 15000 N causes it to accelerate by 5 m/s^2.
17. Calculate the mass of a bus if a force of 20000 N causes it to accelerate by 4 m/s^2.
18. Calculate the mass of a ball if a force of 50 N causes it to accelerate by 100 m/s^2.
19. Calculate the mass of a toy car if a force of 2 N causes it to accelerate by 10 m/s^2.
20. Calculate the mass of a car if a force of 15 kN causes it to accelerate by 10 m/s^2.

21. Calculate the force needed to accelerate a train of mass 60 000 kg by 0.25 m/s^2.
22. Calculate the acceleration of a car of mass 800 kg when driven by a force of 24 k N.
23. Calculate the mass of a car if a force of 30 k N causes it to accelerate by 2 m/s^2.
24. Calculate the force needed to accelerate a ball of mass 150 g by 12 m/s^2.
25. Calculate the acceleration of a toy car of mass 40 g when driven by a force of 0.8 N.

26. Calculate the force required to accelerate a car of mass 1000 kg from rest to 12 m/s in 3 seconds.
27. Calculate the force required to decelerate a car of mass 1500 kg from 20 m/s to rest in 4 seconds.
28. A car of mass 2000 kg is driven by a force of 40 kN for 5 seconds; how much does its speed change?
29. If a bus accelerates from 10 m/s to 15 m/s in 10 seconds with a force of 3 kN what is its mass?
30. What force is exerted on a ball of mass 100g if it accelerates from rest to 30 m/s in 3 seconds?

Equations to use:

force = mass x acceleration

acceleration = force / mass

mass = force / acceleration

acceleration = change in velocity / time taken

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