

35 Easy Calculation Questions based on all the GCSE Physics Equations

1. A 70 kg cyclist is riding at 8 m/s down a quiet road. Calculate the cyclist's kinetic energy.
2. A trampoline spring has a spring constant of 400 N/m and is compressed by 0.10 m. Calculate the elastic potential energy stored.
3. A 3 kg school bag is lifted onto a locker shelf 1.8 m high. Calculate the gain in gravitational potential energy.
4. A 1.5 kg kettle of water is heated from 20°C to 60°C. The specific heat capacity of water is 4200 J/kg°C. Calculate the thermal energy transferred.
5. A phone battery gains 7200 J of energy during a 2-hour charge. Calculate the average power.
6. A builder lifts a 25 kg bag of cement onto a truck, doing 1000 J of work in 20 s. Calculate the power.
7. An electric scooter receives 5000 J of energy from its battery and transfers 4000 J into useful movement. Calculate the efficiency.
8. A fan heater takes in 2000 W of electrical power and produces 1800 W of useful heating power. Calculate the efficiency.
9. Fairy lights draw a current of 0.25 A for 4 minutes. Calculate the charge flow.
10. A bicycle lamp has a resistance of 12 Ω and a current of 0.50 A. Calculate the potential difference across it.
11. An electric shower operates at 230 V and draws a current of 40 A. Calculate its power.
12. A heated blanket draws a current of 2 A and has a resistance of 60 Ω . Calculate its power.
13. An 800 W microwave is used for 3 minutes. Calculate the energy transferred.

14. A cordless drill moves 300 C of charge through a motor at 18 V. Calculate the energy transferred.
15. A gold bar has a mass of 3.8 kg and a volume of 0.0002 m³. Calculate its density.
16. A 0.50 kg ice sculpture melts on a warm day. The specific latent heat of fusion is 330000 J/kg. Calculate the energy needed.
17. A diver's air bubble has a volume of 8.0 cm³ at a pressure of 200000 Pa. It rises and expands to 16.0 cm³. Calculate the new pressure.
18. A rugby player has a mass of 90 kg. Calculate their weight on Earth.
19. A supermarket worker pushes a trolley with a force of 80 N through a distance of 12 m. Calculate the work done.
20. A car suspension spring stretches by 0.05 m when the car hits a bump. The spring constant is 12000 N/m. Calculate the force.
21. A child pushes on a seesaw with a force of 150 N at a distance of 1.5 m from the pivot. Calculate the moment.
22. A stiletto heel exerts a force of 500 N on an area of 0.0005 m². Calculate the pressure.
23. A submarine is 30 m below the sea surface. The density of seawater is 1020 kg/m³. Calculate the pressure due to the water.
24. A train travels at 25 m/s for 40 s. Calculate the distance travelled.
25. A Formula 1 car increases its speed from 20 m/s to 32 m/s in 4 s. Calculate its acceleration.
26. A skateboarder starts from rest and accelerates at 2.5 m/s² over a distance of 20 m. Calculate their final speed.
27. A 1200 kg electric car accelerates at 2.0 m/s² when leaving traffic lights. Calculate the resultant force.
28. A 0.15 kg cricket ball is bowled at 30 m/s. Calculate its momentum.

29. A goalkeeper catches a 0.40 kg football travelling at 20 m/s and stops it in 0.2 s. Calculate the average force exerted.
30. A playground swing completes 2 swings every second. Calculate the period of one swing.
31. A water wave has a wavelength of 5 m and a frequency of 0.8 Hz. Calculate its speed.
32. A microscope produces an image 12 cm high from an object 3 cm high. Calculate the magnification.
33. A loudspeaker wire 0.08 m long carries a current of 3 A in a magnetic field of 0.5 T. Calculate the force on the wire.
34. A phone charger transformer has 240 turns on the primary coil and 20 turns on the secondary coil. The primary voltage is 240 V. Calculate the secondary voltage.
35. A transformer supplies a laptop charger. The primary voltage is 230 V and the primary current is 0.5 A. The secondary voltage is 19 V. Calculate the secondary current.