

GCSE Physics: Two-Step Calculations

Using $V = IR$ and $P = IV$

These questions require two equations to reach the final answer. First calculate the voltage using $V = IR$, then use $P = IV$ to calculate the power transferred. Show all working and include units.

1. A torch bulb has a resistance of 4Ω and a current of 0.5 A flowing through it. Calculate the power transferred.
2. A decorative LED light has a resistance of 10Ω and carries a current of 0.3 A . Calculate the power transferred.
3. A phone charger cable has a resistance of 5Ω and carries a current of 1.2 A . Calculate the power transferred.
4. A bicycle light has a resistance of 8Ω and a current of 1.5 A . Calculate the power transferred.
5. A small desk fan has a resistance of 12Ω and a current of 2 A flowing through it. Calculate the power transferred.
6. An electric blanket has a resistance of 15Ω and draws a current of 2.5 A . Calculate the power transferred.
7. A heated pet bed has a resistance of 20Ω and a current of 3 A flowing through it. Calculate the power transferred.
8. A toaster element has a resistance of 25Ω and draws a current of 4 A . Calculate the power transferred.
9. An air fryer heating element has a resistance of 18Ω and carries a current of 6 A . Calculate the power transferred.
10. A microwave oven has a resistance of 40Ω and draws a current of 5 A . Calculate the power transferred.
11. A hairdryer has a resistance of 23Ω and carries a current of 10 A . Calculate the power transferred.
12. A kettle has a resistance of 23Ω and draws a current of 10 A . Calculate the power transferred. Give your answer in kW.
13. An electric heater has a resistance of 30Ω and carries a current of 8 A . Calculate the power transferred. Give your answer in kW.
14. An electric shower has a resistance of 5.75Ω and draws a current of 40 A . Calculate the power transferred. Give your answer in kW.

15. A workshop heater has a resistance of $12\ \Omega$ and a current of $15\ \text{A}$ flowing through it. Calculate the power transferred. Give your answer in kW.
16. An industrial oven has a resistance of $8\ \Omega$ and carries a current of $30\ \text{A}$. Calculate the power transferred. Give your answer in kW.
17. A rapid electric vehicle charger has a resistance of $2\ \Omega$ and carries a current of $100\ \text{A}$. Calculate the power transferred. Give your answer in kW and explain why such a large current requires thick cables.