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Top 20 GCSE & A-Level Maths and Physics Exam Mistakes (And How to Avoid Them)

**A PRACTICAL GUIDE FOR STUDENTS PREPARING FOR GCSE &
A-LEVEL EXAMS**

Every year, thousands of students lose marks in their GCSE and A-Level Maths and Physics exams—not because they don't understand the topic, but because of **avoidable mistakes**.

✓ **Part 1: Common GCSE Maths Exam Mistakes**

✓ **Part 2: Common Physics Exam Mistakes**

✓ **Part 3: A-Level Maths & Physics Problem-Solving Mistakes**

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US NOW!**



This guide will show you the 20 most common exam mistakes students make in Maths and Physics and how you can avoid them so you can gain easy marks in your exams.

Part 1: Common GCSE Maths Exam Mistakes

1. Misreading the Question

Many students rush and answer the wrong question.

Example:

The question asks for the area, but the student calculates the **perimeter**.

How to Avoid It

- Underline keywords such as:
 - Find
 - Estimate
 - Area
 - Solve
 - Write your answer in simplest form



Exam Tip

Before solving, ask yourself:

"What exactly is the question asking for?"



2. Forgetting Units

In Maths and Physics, answers often require **units**.

Example:

A student writes:

Answer: 50

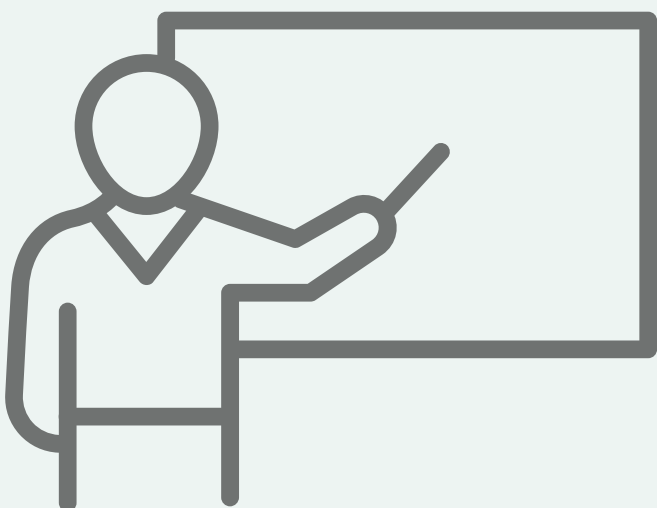
Correct answer should be:

50 cm²

How to Avoid It

Always check:

- Is the question asking for meters, seconds, or kilograms?
- Should the answer be squared or cubed?





Tip:

You can actually figure out the units straight from the equation if you've forgotten them. For example, the area of a square is $A = x \times x$. Since x is measured in cm, that's $\text{cm} \times \text{cm}$, giving you cm^2 . The equation itself tells you the unit.

3. Rounding Too Early

Rounding numbers during calculations leads to inaccurate answers.

Example:

Incorrect process

$$1.83 \times 4.67 \approx 1.8 \times 4.7$$

Correct process

Keep full numbers until the final step.

How to Avoid It

Only round at the final answer.





4. Calculator Errors

Students often:

- Forget brackets
- Use the wrong calculator mode
- Mistype numbers

Common trap with trigonometry (angles): Always check whether your calculator is set to Degrees or Radians before working with $\sin$, $\cos$, or $\tan$. Getting this wrong is one of the most frequent sources of lost marks in exams.

Quick tip for GCSE students: You'll be working in degrees (not radians) for GCSE, so either learn exactly how to check and switch your calculator's mode, or ask your teacher to set it to degrees for you and leave it there. If your answer to a trig question looks wildly off, this is the first thing to check.





Example

Incorrect:

$$5 + 3 \times 2 = 16$$

Correct:

$$5 + (3 \times 2) = 11$$

How to Avoid It

- Always double-check the number you typed
- Use brackets when unsure

5. Not Showing Working Out

Many marks are given for **method**, not just the final answer.

Example:

Even if the final answer is wrong, correct steps may earn **partial marks**.

How to Avoid It

Always write:

- Formula used
- Calculation steps





6. Algebra Sign Mistakes

Students often lose marks due to incorrect signs.

Example:

$$-3x + 5 = 10$$

Common mistake:

$$3x = 5$$

Correct solution:

$$-3x = 5$$

$$x = -5/3$$

How to Avoid It

Check the signs carefully when moving terms across the equation.

This extends to A Level Physics too.

When working with vectors in projectile motion, signs matter, if up is the positive direction, gravity must be -9.81 , not $+9.81$.





7. Forgetting to Simplify Answers

Examiners expect answers in their **simplest form**.

Example

Incorrect:
 $\frac{6}{12}$

Correct:
 $\frac{1}{2}$

How to Avoid It

Always check if your fraction can be simplified.

8. Graph Interpretation Errors

Students sometimes misread graphs.

Example:

Confusing the **x-axis** and **y-axis**.

How to Avoid It

Always check:

- What does the x-axis represent?
- What does the y-axis represent?





Part 2: Common Physics Exam Mistakes

9. Using the Wrong Formula

Physics questions often require choosing the correct formula.

Example

Force question

Correct formula:

$$F = ma$$

Students sometimes incorrectly use:

$$v = u + at$$

How to Avoid It

Write down the known values first.

Example

$$m = 2\text{kg}$$

$$a = 4\text{m/s}^2$$

Then choose the formula.





10. Incorrect Unit Conversion

Physics frequently requires unit conversions.

Example

Speed given in km/h but answer needed in m/s.

How to Avoid It

Common conversions:

- $1 \text{ km} = 1000 \text{ m}$
- $1 \text{ hour} = 3600 \text{ seconds}$
- $1 \text{ g} = 0.001 \text{ kg}$

Tips - The units are based on the equation so multiply by 1000 and divide by 3600 (km/h) to convert





11. Forgetting to Square Values

In many formulas, variables must be squared.

Example

Kinetic Energy

Correct formula:

$$KE = \frac{1}{2} mv^2$$

Students sometimes calculate:

$$\frac{1}{2} mv$$

How to Avoid It

Check whether any variable needs to be **squared or cubed**.





12. Ignoring Significant Figures

Answers must match the precision of the question. Always read the question carefully, unless stated otherwise (e.g. "give your answer to 3 d.p."), follow the rules below.

Example

A Level Maths: Use exact values. Write π rather than 3.142, and keep fractions or surds in their exact form throughout your working.

A Level Physics: Match the minimum number of significant figures given in the question.

13. Misinterpreting Diagrams

Physics diagrams contain important information.

Students sometimes:

- Ignore angles
- Misidentify directions
- Misread forces
- Miss axis units or multipliers (e.g. time in ms, force in 10^3 N steps)



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How to Avoid It:

Label all parts of the diagram before solving, including axis units and any power-of-ten multipliers.

14. Writing Incomplete Explanations

Physics questions often require explanations.

Weak answer:

"Because of energy."

Better answer:

"Energy is conserved, meaning the total energy remains constant."

Tip: Be specific and use the data/graphs from the question. Don't say "it changes" — say "it increases". Even better, quantify it: "it increases by X."





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Part 3: A-Level Maths & Physics Problem-Solving Mistakes

15. Jumping Straight to the Answer

Advanced questions require structured thinking.

Students often skip steps.

How to Avoid It

Write the steps clearly:

- Identify formula
- Substitute values
- Calculate

Keep it algebraic and structured, but don't overdo it. You don't need to number every line. Messy, cluttered working is harder to mark, and examiners are human too. Clean steps win marks.



Skipping the Paper Scan

Most students dive straight into Question 1 without looking ahead.

How to Avoid It

Spend the first 5 minutes scanning the whole paper before you start writing. It calms nerves and lets harder questions sit at the back of your mind while you work through easier ones, your brain often solves them in the background.

It's not a hard rule, but it's a habit worth building.

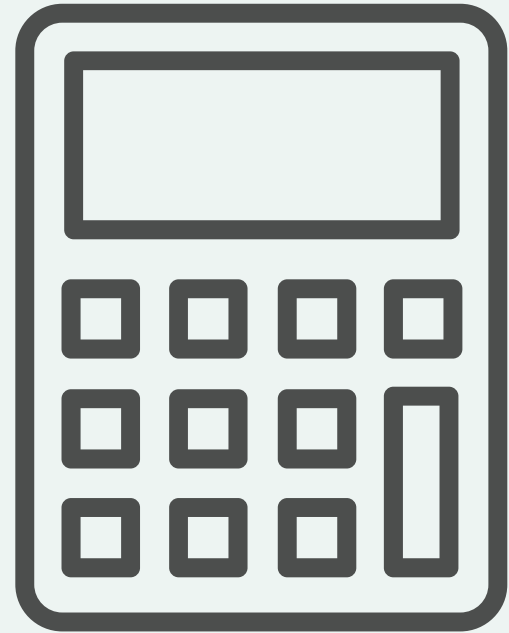
Pro Tip: Think in Proportions

At A-Level, a lot of questions ask "by what factor has this changed?" When that's the case, keep your equations as simple as possible, most constants can be discarded. You only need the variables that actually change.

This shift in thinking is often what separates A* answers from A answers. Don't plug in numbers when proportionality will do the job faster and cleaner.

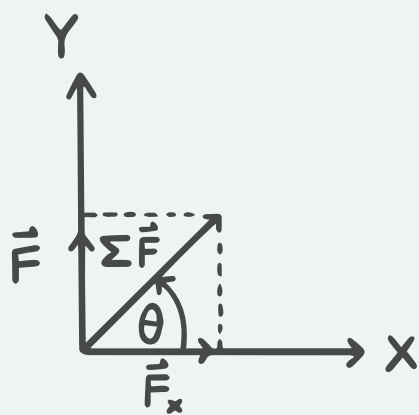


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"Learn your calculator"

This applies to both Maths and Physics. In Maths, your calculator handles statistics, simultaneous equations, integration, and matrices (Further Maths). far faster than working by hand. In Physics, use it to pull exact constants straight from memory: no rounding errors, no typos, no flicking through the constants sheet mid-exam.



$$\vec{F}_x = \vec{F} \cos \theta$$

$$\vec{F}_y = \vec{F} \sin \theta$$

$$X = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$



16. Poor Time Management

Students sometimes spend too long on one question.

How to Avoid It

Rule of thumb:

1 mark $\approx$ 1 minute

If a question is worth 5 marks, spend about **5 minutes**.

17. Not Checking Answers

Many students finish early but never check their work.

Common mistakes:

- Wrong sign
- Missed unit
- Calculation error

How to Avoid It

Leave **5–10 minutes** at the end for review.





Tip:

It sounds minor, but picking up 3–5 marks per paper across a full course is often half a grade boundary (typically 20–25 marks). Sweating the little things here genuinely moves your grade.

18. Ignoring “Show That” Questions

Students panic when they see:

"Show that the answer is..."

But the result is already given.

Strategy

Don't just work backwards, derivations often cancel terms, making reverse-engineering tricky. Instead, ask: which equations relate to this question, and which terms appear in both my equations and the "show that"? Keep those, substitute or cancel the rest.

Think of it like archery, always keep your eye on the target.



19. Overcomplicating Problems

Sometimes students use complex methods when a simpler one exists.

Example

Using calculus when basic algebra works.

How to Avoid It

Check the marks, 1–2 marks usually means 1–2 minutes of work. If your method feels like way more effort than that, it probably is. Look for a simpler approach.

20. Panic and Exam Anxiety

Stress can cause students to forget material they know.

How to Avoid It

Use these techniques:

- Take a deep breath before starting
- Start with easier questions
- Skip difficult questions and return later



Final Exam Strategy Tips

Before submitting your exam paper, check:

- ✓ Did I answer the correct question?
- ✓ Did I include units?
- ✓ Did I show my working out?
- ✓ Did I simplify the answer?
- ✓ Did I round correctly?

These simple checks can gain you extra marks without extra studying.

Don't think Solid point. Keep up exercise, good food, and sleep through exam period. Ditching them tanks recall far more than students realise.





Bonus: Want to Improve Your Maths & Physics Grades?

Many students struggle not because they are bad at Maths or Physics, but because they lack the right **strategy and guidance**.

If you would like help identifying your weak areas and improving your exam performance, you can book a:

Free 20-Minute Maths & Physics Diagnostic Session

In this session, we will:

- Identify your biggest problem areas
- Review your exam technique
- Create a simple plan to improve your results

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