IGCSE MATHEMATICS 0580 · EXAM TRAPS · ~7 MIN READ

# Maths Exam Traps & Last-Night Checklist

The 30 mistakes that lose the most marks in IGCSE Maths, grouped by topic, plus command words, calculator habits and a checklist for the night before.

Calculator | Number | Algebra | Geometry | Trigonometry | Statistics | Command words

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No tag = **Core** (everyone) EXTENDED Extended only highlight = comes up again and again
HANDY worth memorising Test yourself at the end

## IN 30 SECONDS

- **Most lost marks are careless, not hard.** The 30 traps below cause a huge share of them. Read each one and say the correct version out loud.
- **Always show working.** A wrong answer with a correct method still earns method marks. A bare wrong answer earns nothing.
- **Last 10 minutes:** check units, accuracy (3 significant figures) and that every part of every question has an answer.

## 1 The 30 traps

### Accuracy and calculator

COMMON MISTAKE
**Rounding too early.** Keep the full calculator value in the display and round only the final answer.

COMMON MISTAKE
**Wrong accuracy.** Unless told otherwise give 3 significant figures, angles to 1 decimal place and money to 2 decimal places, such as $4.50 and not $4.5.

COMMON MISTAKE
**Calculator in the wrong mode.** Check it is in DEG (degrees), not RAD, before the paper starts.

COMMON MISTAKE
**Fractions typed without brackets.** (3 + 4) ÷ (2 + 5) is not 3 + 4 ÷ 2 + 5. Use brackets or the fraction key.

COMMON MISTAKE
**Time in decimals.** 2.4 hours is 2 hours 24 minutes, not 2 hours 40 minutes.

### Number

COMMON MISTAKE
**Percentage change divided by the wrong value.** Divide by the **original**, not the new value.

COMMON MISTAKE
**Reverse percentages done forwards.** If a price after a 20% rise is $60, the original is 60 ÷ 1.2 = $50. It is not 60 minus 20%.

COMMON MISTAKE

**Adding fractions top and bottom.** 1/2 + 1/3 is 5/6 using a common denominator. It is not 2/5.

COMMON MISTAKE

**Standard form with the wrong first number.** $12 \times 10^3$ is not standard form. It must be $1.2 \times 10^4$.

COMMON MISTAKE

**Ratio with different units.** Convert to the same unit before you simplify or share.

## Algebra

COMMON MISTAKE

**$(x + 3)^2$ is not $x^2 + 9$.** It is $x^2 + 6x + 9$. Write the bracket twice.

COMMON MISTAKE

**$-3^2$ and $(-3)^2$.** On paper $-3^2 = -9$, but $(-3)^2 = 9$. On the calculator use brackets for negative numbers.

COMMON MISTAKE

**Dividing both sides by x.** It loses the solution $x = 0$. Factorise instead: $x^2 = 5x$ gives $x(x - 5) = 0$.

COMMON MISTAKE

**Inequalities.** Flip the sign when you multiply or divide by a negative number.

COMMON MISTAKE

**Sign errors when subtracting equations or brackets.** $-(x - 4) = -x + 4$, and subtracting a negative term adds it.

## Geometry and measures

COMMON MISTAKE

**Bearings.** Measure clockwise from North, use three figures, and draw the North line at the point you travel **from**.

COMMON MISTAKE

**Scale factors.** Area scales by $k^2$ and volume by $k^3$, not by k.

COMMON MISTAKE

**Angle reasons.** Name the full rule, such as "alternate angles are equal". "Z angles" earns nothing.

COMMON MISTAKE

**Radius and diameter mixed up.** If you are given the diameter, halve it before using $\pi r^2$.

COMMON MISTAKE

**Units.** Area is in $cm^2$ and volume in $cm^3$. Convert to the same units first: $1\ m^2 = 10\ 000\ cm^2$ and $1\ m^3 = 1\ 000\ 000\ cm^3$.

## Trigonometry

COMMON MISTAKE

**Wrong sides labelled.** Mark the hypotenuse first, then the opposite and adjacent sides relative to the angle.

COMMON MISTAKE

**Pythagoras added when it should be subtracted.** To find a shorter side use $c^2 - a^2$, not $c^2 + a^2$.

COMMON MISTAKE

**Using sin when you needed $\sin^{-1}$.** To find an angle use $\sin^{-1}$, $\cos^{-1}$ or $\tan^{-1}$ and check the answer is sensible.

## Statistics and probability

COMMON MISTAKE

**Histograms.** The vertical axis is frequency density, not frequency. Divide by the class width.

COMMON MISTAKE

**Cumulative frequency.** Plot at the **upper** boundary of each class and read the median at ½n.

COMMON MISTAKE

**Mean from a frequency table.** Divide by Σf (the total frequency), not by the number of rows.

COMMON MISTAKE

**Median of unordered data.** Always put the numbers in order first.

COMMON MISTAKE

**Probability above 1, or as a ratio.** A probability is a fraction, decimal or percentage between 0 and 1.

COMMON MISTAKE

**Tree diagrams.** AND means multiply along the branches. OR means add the ends. Without replacement the denominators drop by 1.

COMMON MISTAKE

**Describing correlation.** Write the type and the context, for example "positive correlation: as hours of revision increase, the test score increases".

## 2 Command words

### What the question is really asking

| Word | What to do |
|---|---|
| Write down or state | give the answer only. No working is needed |
| Work out or calculate | show your working, then the answer |
| Show that | prove the given result. Every step must be visible |
| Explain or give a reason | give the rule or reason in words |
| Estimate | use rounded values, for example to 1 significant figure |
| Simplify | collect like terms, cancel fractions, give the shortest form |
| Factorise | write as a product, for example 2(x + 3) |
| Solve | find the value or values that make the equation true |
| Sketch | the shape and key points, not drawn to scale |
| Draw or construct | accurate, with ruler, compasses and protractor. Keep your construction arcs |
| Give your answer in terms of π | leave π in the answer, do not use 3.14 |

## 3 Calculator habits

### Use it well

- **Use the answer memory (Ans)** to keep full accuracy between steps, rather than retyping rounded numbers.
- **Check the display** after typing. Misread brackets and a missing minus sign are very common.
- **Use the standard form key** ($\times 10^{x}$ or EXP) for numbers like $3.2 \times 10^{-4}$.
- **Estimate first.** Round everything to 1 significant figure and check your answer is in the right range.

EXAM TIP

**If you are stuck, write the formula and substitute.** Method marks are often half the marks on a question.

## 4 The night before

### Checklist

- **Bag:** black pens, pencils, a ruler, a protractor, compasses, an eraser and a **calculator with fresh batteries**.
- **Revise:** the formula sheet and this sheet. Do **one** short past paper question set. Learn nothing new.
- **Sleep:** aim for 8 hours. A rested brain beats one more hour of revision.
- **In the exam:** answer every question, and never leave a blank. A method mark is still a mark.
- **Time:** about one minute per mark. Move on from anything that takes too long, and come back to it.

## 5 Test yourself

### Test yourself — cover the answers first

**QUICK CHECK**

1. What is 2.4 hours in hours and minutes?
2. A sale price is $60 after a 20% reduction. What was the original price?
3. What is the area scale factor if the length scale factor is 3?
4. Expand $(x + 3)^2$.
5. Solve $x^2 = 5x$.
6. The bearing of B from A is 070°. What is the bearing of A from B?
7. EXT What do you plot on the vertical axis of a histogram?
8. EXT Where do you plot cumulative frequency points?
9. How many $cm^3$ are in 1 $m^3$?
10. What should the calculator angle mode be set to?

**Show answers**

1. 2 hours 24 minutes
2. $75 (60 ÷ 0.8)
3. 9
4. $x^2 + 6x + 9$
5. x = 0 or x = 5
6. 250°
7. frequency density
8. at the upper class boundary
9. 1 000 000
10. DEG

### Stuck on a question?

Send it to me on WhatsApp. I read every message.

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Ask Riyaz Sir

Want regular help? Send this to your parent →