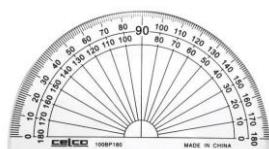


# Maths Emporium *Guides to Life:* GCSE Mathematics examinations

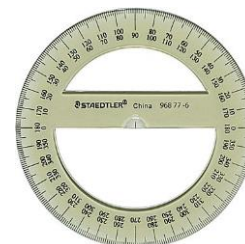
## Before the examination:

**Equipment.** The front of the examination paper says you should have a ruler graduated in centimetres and millimetres, a protractor, a pair of compasses, a pen, an HB pencil, an eraser and, for two papers, a calculator. Chances are that you will need to use all of these in the examination, so make sure you have them with you in a suitably modest pencil case. Gather them together in plenty of time – don't be trying to find all these the night before, or on the morning of, the examination.

**Ruler:** best to have one that's transparent with cm and mm graduations. Leave your gran's wooden ruler graduated in fractions of inches in the drawer where you found it. Flexible curve rulers (as pictured right) are **not** permitted and there's no reason you'd need one; the same goes for French curves.



**Protractor:** A 180° version (left) will be sufficient, but 360° protractors (right) are permitted. Those that convert degrees in a circle to percentages (e.g.  $90^\circ = 25\%$ ) are **not** permitted in the exam.



**Pair of compasses:** Some people are very insistent that the correct term "pair of compasses" is used". So use

This pair:



Not this pair:



You're likely to need a pair of compasses for any questions to do with constructions, loci or perhaps bearings. Make sure your pencil isn't too thick to be used with the pair of compasses you have.

**Pen:** The front of the exam paper says to use black ink or ball-point pen. I expect few students use fountain pens in the exam these days but everyone can, and should, have a black ballpoint pen. Exam scripts are all scanned to be marked on computer screens and black ink shows up best; don't risk anything being missed by the scanners using blue ink. As for green or pink (not unknown), remember you're in an exam – take things seriously. And red? – unless you're marking the exam (you're not), avoid red at all costs.

Take more than one black pen with you, just in case something goes wrong with the first one. And another, just in case something goes wrong with the second one.

**Pencil:** Use an HB pencil – not an H, which is too hard and might be too faint for scanners to pick up and not a B, which is too soft and may not be precise enough for graphs and diagrams. HB is the Goldilocks of pencils – just right. Use pencils for sketches, graphs and diagrams. Use **black** ink for everything else.

**Erasers:** Used for rubbing out pencil marks, which is why we used to call them rubbers. You will need one in case your sketches, graphs or diagrams don't come out perfectly first time.

**Calculators:** Most commercially available calculators can be used in GCSE examinations, including graphical calculators, but only a basic scientific calculator is required.



If you have any doubts, find out in plenty of time from your teacher whether your calculator can be used in the examination. Don't try to find out the night before, or on the morning of the calculator exam – people at the exam board who might know can be hard to reach on exam days.

Make sure your calculator is charged up and that you have some spare batteries if needed, or even a spare calculator. Make sure you know how it works and that it is set for calculations in **degrees** (not radians or gradians – you can learn about those functions once you have passed your GCSE).

**Tracing paper:** The front of the examination paper says that tracing paper **may** be used. Some schools will provide this, though it doesn't mean you will need to use it. Tracing paper should not be appended to scripts at the end, so don't use it for working.



**Highlighter pens:** You may take these into the exam if they are useful for highlighting key words in questions. However, you shouldn't use them for any part of your answers; they might not scan very well or might obscure the answers you are intending to highlight.

**Anything else:** If it's not on the list, it can't be taken into the exam hall. So no mirrors (or bits of card that act like mirrors), no multiplication squares, no slide rules or log tables (for the old folk), no isometric paper, no stencils.

If it's not on a list of things that aren't allowed, don't assume it is allowed. There's nothing in the regulations that says you can't take an elephant into the exam hall, but most people know not to try. There are exceptions for students with special requirements to take in special equipment, but they need to be agreed well in advance by your school or college.

**Food and drink:** Some schools and colleges will allow you to take this in, some won't. It's only two hours, you won't actually expire without such sustenance – but if it's important to you, find out from your institution their policy well in advance.



**Mobile phones:** Does this need to be mentioned? Leave them outside the exam hall. The Joint Council for Qualifications (JCQ) produces a poster which you might see outside the exam hall – no i-pods, i-pads, i-phones or i-watches. Maybe best not to take in anything beginning with i (tough on anyone who uses an inhaler, perhaps, but you can't be too careful).

No android versions of those either, and certainly no actual androids (though we probably would be secretly impressed if you pulled that off).

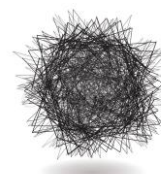


## During the examination:

**Examiners:** Always remember that examiners are human beings, not mind-reading robots. They are looking to give you marks where they can, so make that as easy as possible for them to do. Write your calculations, working and answers clearly and logically so examiners can follow your arguments. The examination is not the time to showcase a new kind of notation or fancy handwriting styles.

**Working:** Your teachers have no doubt told you this, but make sure you write down all your working out; you'd be surprised how many marks you can lose by not doing so. There is no need to be embarrassed by anything you might write; all papers are marked anonymously and all papers are burned after six months. Remember, though, that your school or college might opt to ask for your exam script as part of any review process, so don't go mad.

If you need to cross anything out, just put a single line through it – don't use all the ink in your pen (and a lot of time) utterly obliterating what you have written.



Make sure answers are realistic – for example, gas bills don't tend to run into thousands of pounds, no-one walks 400 miles in a day and people are not 10 metres tall.

**The Exam Paper:** The paper has been designed so that you should have more than enough space to answer each question. Don't write below the line at the end of the question – that part will not be scanned and examiners will not see anything you write there.

You should only ask for extra paper if it is absolutely necessary, for example if you have to completely re-write a question. Make sure any extra pages are securely attached to your exam paper. Do not use extra pages for working out; all working should be written on the examination paper.

Make sure you check the last page or back page – it often has a question on it and this shouldn't be missed. If it says **BLANK PAGE**, that's been put there so you know that we know it's blank and there hasn't been a printing error.

**Formula sheets:** There won't be a formula sheet with the examination paper. You may have been used to seeing one when trying out past papers, but from Summer 2017 you will need to know them. Make sure in advance that you know what formulas you are expected to remember and be able to use.

Everything in the examination paper will be correct – it will have been revised and proof-read many times before you see it. Don't waste time asking a teacher or an invigilator to ring the exam board if you don't understand the question – instead, spend the time trying to work it out. Apart from anything, by the time an invigilator has got through to the exam board on exam day and then got back to you, the exam will probably be over.

If you can't proceed, whether you think the question is wrong or that you just don't know what to do, leave it and come back to it at the end if you have time.

**Time:** Depending on which paper you are taking, you'll have between one and two hours to complete all the questions on the examination paper; to some, this will seem like no time at all to most students, although to a few it will seem like an eternity.



Whatever it feels like, use all the time you have – you have nothing else you can do in the exam hall except to try to answer the questions on the examination paper. Every minute counts and every mark you achieve might be the one which takes you from a 3 to a 4 or an 8 to a 9.

Any time you have left at the end should be used for going through your paper looking for daft errors. For example, check you have copied any final line of your working into the answer space correctly, make sure instances of simple addition and multiplication are correct. Make sure you have given a reason for your answer if required. Make sure that if you have been asked the best buy on a packet of soap powder, for example, you have actually said which one it is.

If you have time, have another look at questions you weren't able to answer – perhaps part (a) isn't that difficult after all. And if it is, perhaps you can answer part (b) anyway.

Every minute counts – so don't use them up producing elaborate (or indeed simple) doodles or writing long (or indeed short) notes to examiners. Crucially, don't spend any time thinking about how funny you will be on Twitter after the exam. Just get on with it.



All of the above has been based on what past students have done or haven't done – if you can learn from their mistakes, it might make the difference between the grade you want and the one you don't. Good luck!

Soon enough it will be all over and you will be allowed out...



## Notes for teachers and invigilators:

**Tracing paper:** To give it out to everyone before the examination starts, or wait until each student requests it? Students shouldn't really need tracing paper for anything other than a question testing transformations, but we either don't know or can't say that there will be such a question on any given paper.

On balance, it would be best to make tracing paper available to all students before the examination starts, with the explicit warning that it might not be needed. Otherwise there's a risk of having to disrupt the examination – if one student asks for tracing paper, chances are many others then will as well.

**Extra paper:** Some students (and some teachers) believe that if extra paper is used, it means that their examination paper will not be scanned and so will be marked by an examiner in a traditional manner, and thus be marked more accurately. This isn't true; the extra paper will still be scanned and marked on-screen – it just might make things harder to mark. The whole process of scanning on-screen makes it easier for senior examiners to know how their teams of examiners are getting on and allows for much more accuracy in marking overall.

Loose sheets of paper should not be appended to scripts unless they have something on them which needs to be marked. Please don't append tracing paper, blank sheets or any cover sheets that might be included with the examination papers.

**Calculators:** What to do when you suspect a student has a calculator which is prohibited by the regulations? If you confiscate a calculator from a student during an examination, you have to be pretty sure you know which calculators are prohibited. It's probably best to let the student continue and take the matter up with the Awarding Body afterwards if you are still concerned. It is ultimately the student's responsibility to make sure they have a permissible calculator and if he or she is found to have one that is prohibited, their result will be invalid. That's probably a better outcome than the fallout which occurs with students and their parents if you confiscate a calculator that you later find is allowed in GCSE examinations.

If you do decide to confiscate a calculator, make sure you have an allowed model which you can give to the student to use; it shouldn't be the case that the student then has no calculator for the rest of the examination.

The **regulations for the use of calculators in examinations** can be found in the Joint Council for Qualifications (JCQ) booklet "**Instructions for conducting examinations (1 September 2015 to 31 August 2016)**", which in turn can be found on the JCQ website at [www.jcq.org.uk](http://www.jcq.org.uk). See note below, "Using calculators".

**Notation:** Examiners are aware that some students have interesting ways of writing the numbers 1 and 7 and that they sometimes use a comma rather than a decimal point when writing numbers. As long as they use such notation consistently, they won't be penalised (though I would refer to "don't make life difficult for the examiner" if such notation can be avoided).

$$\begin{aligned} 1 &= 1 \\ 7 &= 7 \\ 1.200 &= 1,200 \\ 8,5\% &= 8.5\% \end{aligned}$$

## Using calculators

Candidates may use a calculator in an examination unless prohibited by the awarding body's specification. Where the use of a calculator is allowed, candidates are responsible for making sure that their calculators meet the awarding bodies' regulations.

The instructions set out in this section apply to all examinations unless stated otherwise in an awarding body's specification.

<p><b>Candidates must be told these regulations beforehand and be familiar with the <i>Information for candidates</i> documents.</b></p> <p><b>Calculators must be:</b></p> <ul style="list-style-type: none"><li>• of a size suitable for use on the desk;</li><li>• either battery or solar powered;</li><li>• free of lids, cases and covers which have printed instructions or formulas.</li></ul>	<p><b>Calculators must not:</b></p> <ul style="list-style-type: none"><li>• be designed or adapted to offer any of these facilities: -</li><li>• language translators;</li><li>• symbolic algebra manipulation;</li><li>• symbolic differentiation or integration;</li><li>• communication with other machines or the internet;</li></ul>
<p><b>The candidate is responsible for the following:</b></p> <ul style="list-style-type: none"><li>• the calculator's power supply;</li><li>• the calculator's working condition;</li><li>• clearing anything stored in the calculator.</li></ul>	<p><b>Calculators must not:</b></p> <ul style="list-style-type: none"><li>• be borrowed from another candidate during an examination for any reason;*</li><li>• have retrievable information stored in them - this includes:<ul style="list-style-type: none"><li>• databanks;</li><li>• dictionaries;</li><li>• mathematical formulas;</li><li>• text.</li></ul></li></ul>

**Advice:\*** An invigilator may give a candidate a replacement calculator.

**Where access is permitted to a calculator for part of an examination, it is acceptable for candidates to place their calculators on the floor under their desks in sight of the invigilator(s) for the non-calculator portion of the exam.**