



General Certificate of Education

Critical Thinking 1771

CRIT 1

Unit 1 Critical Thinking Foundation Unit

Mark Scheme

2010 examination - January series

Mark schemes are prepared by the Principal Examiner and considered, together with the relevant questions, by a panel of subject teachers. This mark scheme includes any amendments made at the standardisation meeting attended by all examiners and is the scheme which was used by them in this examination. The standardisation meeting ensures that the mark scheme covers the candidates' responses to questions and that every examiner understands and applies it in the same correct way. As preparation for the standardisation meeting each examiner analyses a number of candidates' scripts: alternative answers not already covered by the mark scheme are discussed at the meeting and legislated for. If, after this meeting, examiners encounter unusual answers which have not been discussed at the meeting they are required to refer these to the Principal Examiner.

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Critical Thinking Mark Scheme

INTRODUCTION

The nationally agreed assessment objectives in the QCA Subject Criteria for Critical Thinking are:

AO1 Analyse critically the use of different kinds of reasoning in a wide range of contexts.

AO2 Evaluate critically the use of different kinds of reasoning in a wide range of contexts.

AO3 Develop and communicate relevant and coherent arguments clearly and accurately in a concise and logical manner.

- Marks are allocated to the assessment objectives according to the nature of each question and what it is intended to test.
- For Section A, Examiners need only provide a total mark for each of the candidates' answers. They do not need to provide a breakdown by Assessment Objective.
- For Section B, marks should be awarded according to the generic marking grid.
- Candidates should be able to achieve the highest marks with a selection of relevant points, not necessarily the complete range.
- **Indicative content is provided as a guide for examiners. It is not intended to be exhaustive and other valid points must be credited.**

Unit 1 Critical Thinking Foundation Unit

Section A

No.	Question	AO:	1	2	3
Questions 1 and 2 refer to Document A					
1	<p>In paragraph 3, the article gives a recommendation made by the Reform report:</p> <p>(that) ‘a culture shift is needed so that people no longer boast about their lack of maths skills but are instead embarrassed.’</p> <p>Identify <u>one</u> implicit assumption that is necessary if this recommendation is to be relevant to the problem outlined in the first two paragraphs.</p> <p style="text-align: right;">(2 marks)</p> <p>There are several assumptions that are needed. Examples are:</p> <p>That it will lead to an improvement in the general standards of maths / the numbers of maths graduates in the country (OR: That <i>without</i> a culture shift such improvements will <i>not</i> occur)</p> <p>That the present culture is the reason / cause of why people boast about their lack of maths skills</p> <p>For a clear / precise articulation of an implicit assumption [2]</p> <p>For unclear / imprecise e.g. over- or under-statement of an implicit assumption [1]</p> <p>Candidates who identify an assumption to the effect that people do in fact boast about their current lack of maths skills etc should be awarded [1] because this does implicitly lie behind the meaning of the phrase ‘no longer boast’. However, it does not tie closely enough into the recommendation because this requires a causal influence of a cultural change rather than a mere linguistic presupposition.</p>		2		
2	<p>Look at the comment by Janet Mertz.</p> <p>What has Mertz implicitly assumed about the different attitudes of boys and girls regarding the need they feel to ‘fit in with their peers’?</p> <p style="text-align: right;">(1 mark)</p> <p>That it is more of a concern for girls / a bigger issue for girls / that girls are more motivated or influenced by this need / That girls care more about what their peers think of them than boys do</p> <p>For any formulation [1]</p>		1		

No.	Question	AO:	1	2	3
Questions 3 to 5 refer to Document B					
3	Look closely at the following part of the email exchange:		3	2	
	What I want to know is why people associate being good at maths with being geeky. Rav				
	There's no logical reason for it, Rav. It's just people's prejudices. It's cool not to like maths, and that's just the way it is. Phil				
	It's cool not to like maths for good reasons. Maths has no heart or soul; it's just formulas and logic and equations. There's no feeling in it. It only uses the logical part of the mind. People are not logical. It's cold and clinical and machine-like. It's the language of robots, not humans. Emily				
	Not true. Maths is imaginative. After all, numbers don't really exist. You can't touch the number four. It's like a concept, an idea. Numbers are weird mystical things. You need to have imagination to be good at it. Claire				
(a) Identify the conclusion of Emily's argument. (1 mark)					
	Emily's conclusion is that 'It's cool not to like maths for good reasons' [1]				
(b) Assess Claire's response to Emily's argument. (4 marks)					
	Claire's response is (presumably) aimed primarily at Emily's assertion that maths 'only uses the logical part of the mind'. Candidates could fairly judge that it is an intelligent response that does effectively reveal the simplistic attitudes and approach behind Emily's argument – and counters at least one of her key claims fairly well. Explaining which part(s) of Emily's argument it counters and why/ to what extent [1–3] To do this, however, it makes the implicit assumption that the logical part of the mind is not imaginative / does not include imagination [1] (Candidates could argue whether or not they think this is warranted [1–2])				
					Continued

No.	Question	AO:	1	2	3
	<p>Candidates can point out that it only really targets one part of Emily's argument: whether or not it successfully does this, there are several other reasons that Emily gives that Claire's response has arguably little or no bearing on [1–3]</p> <p>Further marks can be awarded for considering the impact on the other parts of Emily's argument in a little more detail.</p> <p>For recognising the limits of Claire's response in terms of countering the points raised in Emily's argument [1]</p> <p>For arguing / explaining why each further part of Emily's argument is / isn't affected. [1–3]</p> <p>For example: candidates could consider whether or not the claim that 'It's the language of robots, not humans' is affected by Claire's response, and if so, to what extent (e.g. what assumptions need to be made about what it is to be a human or a robot?) [1–3] Award up to maximum of [4] marks</p>				
4	<p>Consider the following exchange between Rav and Amy:</p> <div style="border: 1px solid black; padding: 5px; margin: 5px 0;"> <p>I think more people would like maths if they gave it a chance. Also maybe if teachers taught it better. They need to make it more real life so people can see its benefits. Rav</p> </div> <div style="border: 1px solid black; padding: 5px; margin: 5px 0;"> <p>What do you mean, 'if they gave it a chance'? Ever heard of something called the National Curriculum, Rav? It's not like we have a choice about whether or not to study it. That's the whole problem. It would be fine if only people who wanted to study it did. Amy</p> </div> <p>(a) Identify the hypothetical claim made by Rav that Amy is responding to. (1 mark)</p> <p>Amy is responding to Rav's hypothetical claim: '(I think) more people would like maths if they gave it a chance.' [1]</p>	3	4		
	<p>(b) Explain a way in which Amy's interpretation of what Rav has said might be different from Rav's intended meaning. (2 marks)</p> <p>The phrase 'to give something a chance is ambiguous, since it can mean purely to try something, or it can mean to try something open-mindedly / to try to <i>like</i> (or find the positive in) something. Amy seems to have opted for the first of these interpretations, whereas Rav may well have intended the second.</p>				

No.	Question	AO:	1	2	3
	<p>(c) Do you think Amy’s interpretation is fair or unfair? Explain your answer.</p> <p style="text-align: right;">(4 marks)</p> <p>Candidates can focus on the (hypothetical) claim that Amy is responding to.</p> <p>Of the two possible interpretations given above, the first is a very poor hypothesis for why people don’t like maths (and as Amy points out is obviously false); while the second – the possibility of people being closed towards / prejudiced against maths (those who have a maths ‘block’ for instance) is a realistic one, and a plausible explanation for people not liking maths.</p> <p>For recognising / explaining why one interpretation is better / more plausible [1–2]</p> <p>In selecting the first of the two interpretations, Amy has made Rav’s point look stupid, when it is far more likely Rav’s intended meaning was the second (since Rav is presumably also aware (assuming that they know people have to study maths in school, which is an entirely warranted assumption) that the first meaning would be weak / pointless).</p> <p>By ignoring / failing to consider the more plausible interpretation / by selecting the less plausible (and easily refutable) interpretation, Amy has (arguably) flouted the principle of charity and / or used a straw man in her response to Ravinder – and therefore Amy’s response is unfair / Amy is not being (entirely) fair.</p> <p>For recognising / explaining that in selecting the weaker / less plausible interpretation, Amy’s response is unfair/ a straw man / flouts the principle of charity [1–2]</p> <p>(Candidates may also point out that Amy has only responded to one part of Rav’s post [1]; by only focusing on the weaker interpretation of <i>one</i> of Rav’s assertions, this makes the straw man worse / Amy’s response more unfair. [1])</p> <p>Award up to maximum of [4] marks</p>				

No.	Question	AO:	1	2	3
5	<p data-bbox="280 300 852 333">Look at the final posts by Phil and Emily.</p> <div data-bbox="280 400 1289 584" style="background-color: #e0e0e0; padding: 5px;"> <p data-bbox="280 400 1273 535">Sure, go ahead and avoid maths. And then don't complain when you find – as a result – you are incapable of forming a logical argument or thinking clearly about anything. Maths sharpens up your mind, makes you think and reason better.</p> <p data-bbox="280 539 336 573">Phil</p> </div> <div data-bbox="280 620 1289 696" style="background-color: #e0e0e0; padding: 5px;"> <p data-bbox="280 620 1078 654">I assume you've been skipping your maths classes, Phil!</p> <p data-bbox="280 658 360 692">Emily</p> </div> <p data-bbox="280 730 727 763">(a) Look at Phil's argument.</p> <p data-bbox="280 799 1273 869">(i) What recommendation has been implied by his argument? (2 marks)</p> <p data-bbox="280 904 1182 938">Accept: you shouldn't avoid maths / that you <i>ought</i> to study maths [2]</p> <p data-bbox="280 974 1011 1008">accept also: that you would be foolish to avoid maths [2]</p> <p data-bbox="280 1043 1016 1077">For a clear articulation of an implied recommendation [2]</p> <p data-bbox="280 1113 1270 1216">For unclear / imprecise articulation, or for a conclusion that is not (clearly) in the form of a recommendation, e.g. that maths is <i>good</i> to study / maths is good for you [1]</p> <p data-bbox="280 1252 1273 1321">(ii) Explain a way in which Phil's argument might be flawed. (3 marks)</p> <p data-bbox="280 1357 1257 1494">The claim that 'Maths sharpens up your mind, makes you think and reason better' assumes that (studying) maths is a sufficient condition for bringing about these consequences – this assumption is perhaps plausible, but requires further support to be convincing.</p> <p data-bbox="280 1529 1267 1632">More significantly, the argument implies that if you <i>don't</i> study maths, this will lead to you finding that you are 'incapable of forming a logical argument or thinking clearly about anything'.</p> <p data-bbox="280 1668 1257 1771">This line of thinking has assumed that (studying) maths is a <i>necessary condition</i> for 'forming a logical argument or thinking clearly about anything', which is almost certainly a false assumption.</p> <p data-bbox="280 1807 1262 1910">Candidates could interpret this as a form of <i>slippery slope</i> argument, where the consequences of not doing something are hugely exaggerated / go far too far.</p>	2	7		

Continued

No.	Question	AO:	1	2	3
	<p>For suitable explanation of a way in which the argument is flawed award up to maximum [3]. (Award [1] for correct labelling of a relevant flaw and [1] for showing general understanding of a relevant flaw without explaining the relevance here)</p>				
	<p>(b) Now consider Emily's response to Phil's argument.</p> <p>Who gets the better of this final exchange, and why? (4 marks)</p> <p>To judge that Phil gets the better of the exchange, candidates will need to argue that, <i>while being flawed</i>, there is some substance to Phil's argument; or at the very least, he does provide an argument; and that Emily offers little more than a personal attack.</p> <p>A case can also be made for Emily. Candidates can argue that Phil's argument is heavily flawed, and Emily's response, by implying this, shows she is aware of this, and is drawing attention to it.</p> <p>It is even arguable that Emily's response does more than just flag up a flaw in Phil's argument. Emily's response also cleverly (if indirectly) <i>refutes</i> Phil's argument, by showing the assumptions it makes (about studying maths being a necessary and sufficient condition to reason well / a necessary condition to avoid reasoning badly) to be false. By implying / drawing attention to the fact that Phil's argument is poorly reasoned, Emily has shown Phil's argument to be self-refuting (assuming Phil <i>has</i> been studying maths).</p> <p>Emily's comment has put Phil into a corner: either Phil <i>has</i> been studying maths, and has refuted his own argument by reasoning badly; or Phil has <i>not</i> been studying maths, which undermines his position / authority to make the pronouncements he makes on the matter, and hence makes his overall position ridiculous!</p> <p>For each relevant comment/ development [1] For overall assessment with justification [1]</p> <p>Award up to maximum [4] marks</p>				
	<p>Questions 6 to 9 refer to Document C</p>				
6	<p>What is the overall conclusion of Nordling's article? (1 mark)</p> <p>The argument's main conclusion is that the media are not to blame for the ('square', or 'geeky') image of maths. [1]</p>		1		

No.	Question	AO:	1	2	3
7	<p>In paragraphs 4, 5 and 6 the author gives examples of films that present images of maths and/or mathematicians.</p> <p>(a) Identify the intermediate conclusion that Nordling draws from these examples. (1 mark)</p> <p>Accept either:</p> <p>Maths in film is not all about inch-thick glasses and obsessive compulsion [1]</p> <p>Or: the idea that there are no flattering portrayals of mathematicians in mainstream media is just plain wrong [1]</p> <p>(Accept also suitable paraphrases – e.g. that there <i>are</i> positive images of maths in the media)</p>	1	5		
	<p>(b) Consider the support that the examples in paragraphs 4, 5 and 6 give for the author’s overall argument. (5 marks)</p> <p>The author offers three separate lines of reasoning to support her conclusion, each with its own conclusions (either stated or implied):</p> <div data-bbox="309 1099 1227 1675" data-label="Diagram"> <pre> graph TD A["(MAIN) CONC: Media not to blame for maths"] B["Films do not all present 'negative' portrayals"] C["Unlikely that more positive portrayals in media would make maths more popular"] D["The reason for the image is it's true/ (+thus deserved!)"] B --> A C --> A D --> A </pre> </div> <p>(Candidates do not need to explain the overall structure of the argument, but credit should be given to their doing so if it assists with / lends authority to their evaluation)</p> <p>Candidates could usefully discriminate between how well the examples support her intermediate conclusion in paragraph 7 and how well this supports her overall conclusion.</p>				

Continued

No.	Question	AO:	1	2	3
	<p>Candidates could successfully point out that the examples do give good support for the intermediate conclusion(s) the author draws in paragraph 7. [1–2] However, neither the examples themselves nor the intermediate conclusion give adequate support for the main conclusion [1]</p> <p>In terms of more specific evaluation candidates might mention that these are all interpretations / opinions – they are not factual / other interpretations may conflict/ be equally valid [1–2]</p> <p>(Candidates could develop this by pointing out that the account of Jeff Goldblum’s character in Jurassic Park is especially personal-sounding!) [1]</p> <p>Candidates could comment on the way Nordling presents her examples, through e.g. the (persuasive) language she uses, or the relative space or consideration she gives to the films that she thinks support her argument and the potential counter-examples she recognises. For either / each point [1–2]</p> <p>Candidates could comment critically on the relatively small number of films cited (three) in context of the overall number of films made / in the context of other films she cites / glosses over which seem to support the opposing view (a 50-50 split of glamorous versus ‘geeky’ is not good support for her overall conclusion) / candidates could argue that the role films play in determining the image of something amongst society at large depends on the <i>impact</i> of the films, not the <i>number</i> of films – and that the way the author presents them (i.e. through the language used) might be exaggerating the impact of the films that support her case / diminishing the apparent significance of the counter-examples. Candidates could also mention that films are only one aspect of the media – and therefore the problem of generalisation is even more acute.</p> <p>(Another way to consider or phrase this is to consider whether or not the examples she gives are sufficient / adequate / significant enough to support the overall view that the media does not present maths / mathematicians in a negative, ‘geeky’ light. These are all acceptable ways of making the assessment)</p> <p>For recognising a problem with generalisation (or adequacy or sufficiency) [1]</p> <p>For recognising that this is a problem for the support the examples give for her overall conclusion, not the intermediate ones she draws in paragraph 7 [1–2]</p> <p>For referring to the numbers of films cited and the context (overall numbers made / anecdotal selection / opposing films cited / films as not representative of media at large) [1–2]</p>	Continued			

No.	Question	AO:	1	2	3
	<p>Finally, candidates could question whether or not (the point she intends to make with) the examples in paragraphs 4–6 actually conflict with / contradict other parts of her argument, such as the argument in paragraph 8 that implies that the portrayal of mathematicians in the media is irrelevant to the numbers of students who study / enjoy maths; or her overall conclusion that the media is not to ‘blame’ for the image of maths (in that she herself admitted to being influenced by a media image of maths in paragraph 3)</p> <p>[1–3] for recognising / explaining / assessing (each of) the possible contradiction(s)</p> <p>Candidates may wish to consider the significance of the examples she gives for her argument as a whole. Credit should be given accordingly. For example:</p> <p>They could point out that the examples / the intermediate conclusion she draws from her examples are only part of her argument – that her overall argument does not rely on this point [1]</p> <p>On the other hand, this is supposed to support her overall conclusion and it is very debatable whether or not it does so at all [1]</p> <p>Award marks accordingly up to a maximum of [5] marks</p>				
8	<p>Look closely at paragraph 8.</p> <p>(a) What conclusion has been implied?</p> <p style="text-align: right;">(1 mark)</p> <p>The implied conclusion is that: (any attempt to make maths more popular by) changing its portrayal in the media would <i>not</i> make maths more popular [1]</p> <p>(Accept suitable paraphrasing, e.g. ‘Altering the way maths is portrayed in the media will not encourage more people to study it / will not make it more attractive’ [1])</p>		1		
	<p>(b) Explain the support provided, including any implicit assumptions that are required.</p> <p style="text-align: right;">(5 marks)</p> <p>The author offers three reasons for the intended / implied conclusion:</p> <p>(Either) People study maths because they like it for what it is, or because they need it [1]</p> <p style="text-align: right;">Continued</p>		5		

No.	Question	AO:	1	2	3
	<p>The number who study it because they like it could perhaps be increased by better maths teaching in schools [1]</p> <p>The other group (those who study it because they need it) is unlikely to be bothered by whether there is a mathematician on EastEnders or not (or to be bothered by how it's portrayed in the media) [1]</p> <p>For the reasons to support the intended (implied) conclusion, the implicit assumption is required:</p> <p>That number in the first group (who study maths because they like it) would <i>not</i> (also) be increased by changing its portrayal in the media. [1–2]</p> <p>Candidates may identify a deeper assumption which is lurking underneath this missing premise; namely that:</p> <p>The way maths is taught in schools is the <i>only</i> (significant) way to affect / increase the numbers of students who enjoy it [1]; or that:</p> <p>The role of the media in capturing students' interest in a / the subject is insignificant compared to the role of the teacher [1].</p> <p>Candidates could also identify an assumption to the effect that the numbers who study it because they need to will not study it <i>further</i> as a result of changed attitudes/ positive portrayal in media [1]</p> <p>NB for clear and correct specification of the key implicit assumption(s) [2]</p> <p>All three reasons (and the implicit assumption(s)) are working jointly / need to be taken together [1]</p> <p>Award marks for explaining the support provided (up to a maximum of 5):</p> <p>For identifying the explicit reasons offered [1–3]</p> <p>For identifying the major assumption(s) required [1–2]</p> <p>For identifying the structure [1]</p>				
	<p>(c) What do you see as the main problem with the reasoning in paragraph 8? Explain your answer.</p> <p style="text-align: right;">(6 marks)</p>			6	
	<p>The main problem with the argument is the implicit assumption it makes: that the first group the author identifies (i.e. who study maths because they like it) would not (significantly) be influenced (i.e. their number increased) by</p> <p style="text-align: right;">Continued</p>				

No.	Question	AO:	1	2	3
	<p>a more positive portrayal of maths in the media. No explanation is offered for why this has been assumed; why for instance could the media portrayal not work alongside ‘better maths teaching in schools’ to increase the size of this ‘group’?</p> <p>Candidates could develop this answer by pointing out that, when one takes into account her own experiences (paragraph 3) this seems particularly unfounded.</p> <p>(Similarly) If the number of people who like maths could be affected by the quality of teaching, this indicates that a liking for maths is not fixed / innate / can be nurtured – which would help to give grounds for the belief that changing its portrayal in the media could influence student interest in the subject.</p> <p>Candidates could question the consistency of her argument here; even point to a potential contradiction between her implicit assumption and the anecdotal evidence she gives in paragraph 3.</p> <p>Candidates could also challenge the deeper assumption that the role of the teacher in inspiring interest in a subject is (significantly) greater than the role of e.g. the media.</p> <p>Whichever version of the assumption candidates identify the crucial point is that it is a major assumption and the argument collapses without it (all the reasons and the assumption are needed together for the argument to work)</p> <p>NB Candidates deserve credit for interpreting the weakness as an example of a <i>false dichotomy</i>: there could be a third reason for why people (do or don’t) study maths – because they are influenced (positively or negatively) by social attitudes including e.g. those of the media. By assuming that this is not the case, her argument could also be considered to <i>beg the question</i>.</p> <p>For correctly identifying the problem with the reasoning – that the author fails to consider / explain why the numbers of students who enjoy maths / study it because they like it might not be affected by changing its portrayal in the media / that this has been implicitly assumed (and therefore she has restricted the options and / or her argument is circular) [1–2]</p> <p>For suitable development / explanation of this problem award up to a maximum of 4 further marks.</p> <p>Some credit could also be awarded for relevant critical comments targeting other problems, such as:</p> <p>The second reason is also a little weak / vague (unlikely could mean ‘might’) [1–2]; it’s also assumed with no evidence [1]</p> <p style="text-align: right;">Continued</p>				

No.	Question	AO:	1	2	3
	<p>Candidates could detect a possible straw man here, albeit for comic effect: those who argue for improving the image of maths in the media are unlikely to think that putting a mathematician on EastEnders is enough. Candidates should gain credit for showing knowledge of the straw man fallacy [1] / explaining why there is a case for one here [1–2]</p> <p>Candidates may be unhappy with the way the author has grouped / categorised students who study maths, declaring it to be e.g. a false dichotomy or generalisation. Unless this is developed to explain why this constitutes a (genuine) problem with the reasoning, restrict to [1–2]. Similarly, candidates who criticise the argument for its general (over-) reliance on assumptions rather than evidence can be awarded [1–2].</p>				

No.	Question	AO:	1	2	3
9	<p>The author makes a comparison in paragraphs 10 and 11 between our images of mathematicians and archaeologists, and the extent to which these are influenced by their portrayal in the media.</p> <p>(a) What is the purpose of the comparison? (2 marks)</p> <p>The comparison, or analogy, is trying to show that our image or view of mathematicians is <u>not</u> <i>caused by / explained by / the result of / influenced by</i> their portrayal in the media [2]</p> <p>(This is done through the contrast between our image of archaeologists (which she implies <i>is</i> heavily influenced by their portrayal in the media, i.e. through the Indiana Jones films), and of mathematicians (which she thinks / has argued is <i>not</i> – or at least significantly <i>less so</i>)</p> <p>It is also done by offering an alternative (and what she clearly implies is the better) explanation for this contrast: that our image is determined by the truth.)</p> <p>Candidates could draw out a further implication of the comparison and say that its purpose is to show that the image/ perception of maths will be difficult to change/ influence despite its (positive) portrayal in the media [2]</p>	2	5		
	<p>(b) How effective is the comparison in paragraphs 10 and 11? In your answer you may want to consider:</p> <ul style="list-style-type: none"> • how effectively it helps support her argument in paragraphs 10 and 11 • how effectively it helps support her overall argument. <p style="text-align: right;">(5 marks)</p> <p>Candidates could question the causal explanations given / assumed by the author.</p> <p>For one thing, she needs to assume that there are not other (equally plausible) explanations:</p> <ul style="list-style-type: none"> • The Indiana Jones films are bigger / more influential • We have less contact with (real) archaeologists than mathematicians, and so are more likely to be influenced by the media image of the former <p>Leaving these other explanations open weakens the effectiveness of her comparison.</p> <p style="text-align: right;">Continued</p>				

No.	Question	AO:	1	2	3
	<p>Candidates could ask: If her explanation is correct, i.e. if our image of mathematicians <i>is</i> determined by what they're really like (rather than their portrayal in the media), why is this not <i>also</i> the case with archaeologists? [1] Or is there some <i>truth</i> in the image of the archaeologist as Indiana Jones? – is the analogy implying this, and if so, does that make it lose its effectiveness altogether?) [1–2]</p> <p>(NB there is a problem with clarity here, that candidates could pick up on / point out that some further explanation seems to be required) [1–2]</p> <p>Candidates could question whether the comparison the author makes / the way she uses it is consistent with other parts of her argument. They could argue that there is a danger of contradiction with her earlier admission (in paragraph 3) that she had acquired a glamorous image of mathematicians after watching Jeff Goldblum's character in Jurassic Park. They could also question whether or not the comparison/ analogy itself is internally consistent – it seems to use the fact that we <i>are</i> influenced by the media (in the case of Indiana Jones) to argue that we are <i>not</i> (in the case of maths). [1–3]</p> <p>(NB Candidates do not need to use the terms 'contradiction' or 'inconsistent' in order to gain credit for these assessments)</p> <p>Candidates can be awarded some credit for commenting / arguing that the comparison does show that the link between reality and film / media potrayals is not simple / direct, and therefore offers her overall argument some support. [1–2]</p> <p>Award up to maximum [5] marks</p>				

Section B (see Generic Mark Scheme, page 20)

No.	Question	AO:	1	2	3
10	<p>Write a reasoned argument for or against the view that maths deserves to be thought of as ‘geeky’.</p> <p>In answering this question you should:</p> <ul style="list-style-type: none"> • use the information, and respond to issues or arguments, in the source documents • state your conclusion (or conclusions) clearly • offer effective reasoning to support your conclusion(s). <p style="text-align: right;">(20 marks)</p>				20
	<p>SAMPLE RESPONSES</p> <p>Conclusion</p> <p>There is no right conclusion, but candidates should either take the line that maths <i>does</i> deserve to be thought of as (at least a little bit) ‘geeky’; or that it does <i>not</i>.</p> <p>Their position should also be recognisable as a conclusion, and be consistent with the reasons / arguments which accompany it. Simply stating a view is not sufficient.</p> <p>Reasoning & Use of documents</p> <p>Lines of argument / evaluation could include:</p> <ul style="list-style-type: none"> • Candidates could argue that there is something fundamentally / inherently ‘geeky’ about maths/ the nature of the subject/ its content (development of points made by Emily in the exchange of views, and the ‘evidence’ presented by Nordling of her background in / experiences of studying the subject: candidates could point out as a maths graduate, she <i>does</i> have relevant personal experience / expertise to draw from here). Analogies could perhaps be made with other past-times which are always going to be ‘geeky’, even perhaps to the admission of those who partake in them, e.g. trainspotting. • Candidates could develop this argument to say that, besides, there is nothing wrong with the ‘geeky’ label; that ‘geeky’ can be cool in a certain sort of way (e.g. connotations of intelligence / braininess); that this is just a gentle / good-humoured way of teasing by the people who are not so good at maths, perhaps even getting their own back for being made to feel stupid for not ‘getting it’; and that admitting this is the case allows for a sense of humour amongst those who are into maths. People should not be so uptight about this etc. <p style="text-align: right;">Continued</p>				

No.	Question	AO:	1	2	3
	<ul style="list-style-type: none"> • This argument could be flipped: that what seems like merely good-humoured teasing can easily resort into e.g. bullying; and that there are serious consequences / this kind of label (if perhaps unwittingly) leads to serious consequences for e.g. education / the state of maths and e.g. the economy. • A useful discussion could take place about the ‘rights’ and ‘wrongs’ of prejudice – and in this case its causes. Are some prejudices ok / better than / more acceptable than others? Is prejudice against maths / ‘geekiness’ a prejudice it’s ok to have? Should it be? What in this case are the causes of the prejudice, and does maths bring it on itself? Is it legitimate to have certain prejudices if these prejudices are in some way <i>justified</i>/ if there are reasonable <i>grounds</i> for the prejudice? (are these even rightfully called <i>prejudices</i>?) Or are prejudices always wrong? (NB although credit should be awarded for recognising such underlying questions of principle, the candidate will need to provide (reasoned) answers, not merely pose the questions to score well) • Candidates could take a more qualified position, saying something like: Yes, maths does deserve to be thought of as geeky, although this is due to the way it’s currently taught / thought of by society, and not due to inherent characteristics of the subject itself; to argue this way, candidates need to make it clear that they are also arguing, in another sense, that it does <i>not</i> deserve to be thought of as geeky, and perhaps go along with e.g. suggestions put forward by Rav or the view criticized by Nordling, that efforts need to be made to counter this view • Candidates are free to bring in their own views or thoughts about the value of mathematics – for example its usefulness in the sciences / technology, or its relation to the arts e.g. form / composition (especially in music). However, these need to be tied to the question; i.e. this needs to give clear credence / support to one or the other viewpoint <p>(NB it is likely that candidates will want to include in their answer some discussion/ consideration of what is meant by ‘geeky’ – whether this is an appropriate word/ what it connotes / implies. They do not have to use the dictionary definition provided, but if they use it to assist them with their argumentation they should be credited accordingly under the ‘Reasons / Lines of reasoning’ criterion)</p> <p>(Note: The above are sample responses and do not constitute an exhaustive list.)</p>				

Continued

GENERIC MARKING GUIDE, Question 10

Descriptor	Award Level		
	Good response Communication is clear and appropriate	Reasonable response Communication is mostly clear and appropriate	Limited response Communication errors may impede understanding
Conclusion A conclusion is clearly stated that is consistent with the reasoning, follows smoothly and logically <i>from</i> the reasoning, and directly responds to the question	4	3–2	1
Reasons/Lines of Reasoning The above conclusion is well supported with reasons, contributory arguments, examples, clarification of terms, etc.	8–10	4–7	1–3
Use of source documents Candidate has engaged critically with source material	5–6	3–4	1–2

Distribution of marks across the questions and assessment objectives for Unit 1

	AO Balance	AO1	AO2	AO3
Total Section B	0	0	0	20
(Document A Questions)		3	-	-
(Document B Questions)		8	13	-
(Document C Questions)		10	16	-
Total Section A	21	21	29	-
Total Paper 1: [70]	21	21	29	20