

Criterion A: Use of notation and terminology

Achievement level

- 0 The student does not use appropriate notation and terminology.
- 1 The student uses some appropriate notation and/or terminology.
- 2 The student uses appropriate notation and terminology in a consistent manner and does so throughout the work.

Tasks will probably be set before students are aware of the notation and/or terminology to be used. Therefore the key idea behind this criterion is to assess how well students' use of terminology describes the context. Teachers should provide an appropriate level of background knowledge in the form of notes given to students at the time the task is set.

Correct mathematical notation is required, but it can be accompanied by calculator notation, particularly when students are substantiating their use of technology.

This criterion addresses appropriate use of mathematical symbols (for example, use of " \approx " instead of " $=$ " and proper vector notation).

Word processing a document does not increase the level of achievement for this criterion or for criterion B.

Students should take care to write in appropriate mathematical symbols if the word-processing software does not supply them. For example, using x^2 instead of x^2 would be considered a lack of proper usage and the student would not achieve level 2.

Criterion B: Communication

Achievement level

- 0 The student neither provides explanations nor uses appropriate forms of representation (for example, symbols, tables, graphs and/or diagrams).
- 1 The student attempts to provide explanations or uses some appropriate forms of representation (for example, symbols, tables, graphs and/or diagrams).
- 2 The student provides adequate explanations or arguments, and communicates them using appropriate forms of representation (for example, symbols, tables, graphs and/or diagrams).
- 3 The student provides complete, coherent explanations or arguments, and communicates them clearly using appropriate forms of representation (for example, symbols, tables, graphs and/or diagrams).

This criterion also assesses how coherent the work is. The work can achieve a good mark if the reader does not need to refer to the wording used to set the task. In other words, the task can be marked independently.

Level 2 cannot be achieved if the student only writes down mathematical computations without explanation.

Graphs, tables and diagrams should accompany the work in the appropriate place and not be attached to the end of the document. Graphs must be correctly labelled and must be neatly drawn on graph paper. Graphs generated by a computer program or a calculator "screen dump" are acceptable provided that all items are correctly labelled, even if the labels are written in by hand. Colour keying the graphs can increase clarity of communication.

Criterion C: Mathematical process

Type II—mathematical modelling: developing a model

Achievement level

- 0 The student does not define variables, parameters or constraints of the task.
- 1 The student defines some variables, parameters or constraints of the task.
- 2 The student defines variables, parameters and constraints of the task and attempts to create a mathematical model.
- 3 The student correctly analyses variables, parameters and constraints of the task to enable the formulation of a mathematical model that is relevant to the task and consistent with the level of the course.
- 4 The student considers how well the model fits the data.
- 5 The student applies the model to other situations.

At achievement level 5, applying the model to other situations could include, for example, a change of parameter or more data.

Criterion D: Results

Type II—mathematical modelling: interpretation

Achievement level

- 0 The student has not arrived at any results.
- 1 The student has arrived at some results.
- 2 The student has not interpreted the reasonableness of the results of the model in the context of the task.
- 3 The student has attempted to interpret the reasonableness of the results of the model in the context of the task, to the appropriate degree of accuracy.
- 4 The student has correctly interpreted the reasonableness of the results of the model in the context of the task, to the appropriate degree of accuracy.
- 5 The student has correctly and critically interpreted the reasonableness of the results of the model in the context of the task, including possible limitations and modifications of these results, to the appropriate degree of accuracy.

Criterion E: Use of technology

Achievement level

- 0 The student uses a calculator or computer for only routine calculations.
- 1 The student attempts to use a calculator or computer in a manner that could enhance the development of the task.
- 2 The student makes limited use of a calculator or computer in a manner that enhances the development of the task.
- 3 The student makes full and resourceful use of a calculator or computer in a manner that significantly enhances the development of the task.

The level of calculator or computer technology varies from school to school. Therefore teachers should state the level of the technology that is available to their students. Using a computer and/or a graphic display calculator (GDC) to generate only graphs or tables may not significantly contribute to the development of the task.

Criterion F: Quality of work

Achievement level

- 0 The student has shown a poor quality of work.
- 1 The student has shown a satisfactory quality of work.
- 2 The student has shown an outstanding quality of work.

Students who satisfy all the requirements correctly achieve level

1. For a student to achieve level 2, work must show precision, insight and a sophisticated level of mathematical understanding.