

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 the 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 $x^{\wedge}2$ would be considered a lack of proper usage and the student would not achieve a 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 providing 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 I—mathematical investigation: searching for patterns

Achievement level

- 0 The student does not attempt to use a mathematical strategy.
- 1 The student uses a mathematical strategy to produce data.
- 2 The student organizes the data generated.
- 3 The student attempts to analyse data to enable the formulation of a general statement.
- 4 The student successfully analyses the correct data to enable the formulation of a general statement.
- 5 The student tests the validity of the general statement by considering further examples.

Students can only achieve a level 3 if the amount of data generated is sufficient to warrant an analysis.

Criterion D: results

Type I—mathematical investigation: generalization

Achievement level

- 0 The student does not produce any general statement consistent with the patterns and/or structures generated.
- 1 The student attempts to produce a general statement that is consistent with the patterns and/or structures generated.
- 2 The student correctly produces a general statement that is consistent with the patterns and/or structures generated.
- 3 The student expresses the correct general statement in appropriate mathematical terminology.
- 4 The student correctly states the scope or limitations of the general statement.
- 5 The student gives a correct, informal justification of the general statement.

A student who gives a correct formal proof of the general statement that does not take into account scope or limitations would achieve level 4.

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 GDC to generate 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.