

MAT 2000 Relevance Checker

- **Red:** Question not relevant for current syllabus.
- **Orange:** Question not entirely relevant for current syllabus but worth attempting. See comments.
- **Black:** Question relevant for current syllabus.

1. Multiple Choice

(A). Transformed Cubic

This question is relevant for the current syllabus.

(B). Coloured Cube

This question is relevant for the current syllabus.

(C). Shortest Distance from Origin to Line

This question is relevant for the current syllabus.

(D). Three Solutions of Cubic

This question is relevant for the current syllabus.

(E). Maximum Gradient of Quartic

This question is relevant for the current syllabus.

(F). Factorisation of Two-Variable Cubic

This question is relevant for the current syllabus.

(G). Messy Derivative

This question uses the chain rule, product rule and trigonometric differentiation, all of which are not relevant for the current syllabus.

(H). Infinite Series

This question is relevant for the current syllabus.

(I). Squares and Grid Lines

This question is relevant for the current syllabus.

(J). Pack of Cards

This question is relevant for the current syllabus.

2. Turning Points of a Cubic

The entirety of this question is relevant for the current syllabus.

3. Quadratic and Quartic

The entirety of this question is relevant for the current syllabus.

4. Differentiation from Unusual First Principles

The very first part of (a) (From these rules alone, show that...) is clearly intended to be solved by induction, which is no longer on the syllabus - although candidates should nonetheless consider learning it (see Lesson Nine of our MAT Primer Course) as it can provide a useful alternative approach in some problems. It's just about possible to solve without induction (see our typed or video solutions) but a lot more difficult and likely not what was intended. The rest of this question is entirely relevant; although the product rule is involved (specifically it is Rule 4), it is given to us in the question and so this isn't beyond the specification!

5. Ants and Rods

The entirety of this question is relevant for the current syllabus.