Examiners' Report
Principal Examiner Feedback

Summer 2025

Pearson Edexcel GCE
Further Mathematics (8FM0)
Paper 26 Further Mechanics 2

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Overview

This paper was generally well received with the vast majority of learners able to attempt all questions. It was also notable that a good number of learners were able to access later parts of questions even if they had struggled to complete the first part.

Learners must also realise that when a question has a given answer their working needs to be accurate and correct. A great many lost marks by missing terms from at least one side or part of an equation (especially in question 1) or by giving a printed answer with almost no other working seen (often on question 4(a)).

Question 1

(a) Responses to this question were often good and successful methods included the subtraction of the triangle from the rectangle, as in the mark scheme, and the addition of two triangles to a rectangle. Some weaker responses divided the shape up into further parts and often made errors with lengths or duplicated parts; other weak responses mistakenly thought the shape was a framework.

(b) Stronger responses dealt with this efficiently and among the weaker responses it was common to see an incorrect assumption that the angle DXA, where X is the centre of mass, was right-angled.

Question 2

(a) While responses to this part tended to be good, weaker responses did not correctly rearrange the equation, making errors with signs or when squaring.

(b) While most responses made an attempt at differentiation, the fractional index and negative signs proved challenging, particularly within weaker responses. Many learners spent significant effort rearranging algebra to justify their expression being equivalent to the printed answer and a number of otherwise correct responses failed to do this without an error in their working.

(c) This part offered a good chance for some learners to restart even where their response to the previous sections was incorrect. Weaker responses frequently did not make the deceleration negative, while others used their own incorrect expression from part (b) rather than taking the opportunity to restart with the printed answer.

(d) Although many correct responses were seen, a notable proportion chose to integrate between 0 and 7.5, rather than use the information they had gained in part (a) to separate the calculation as outlined in the mark scheme. Weaker responses often made errors with fractions and negative signs when dealing with the integration.

Question 3

(a) While this was a given answer and the text of the question encouraged learners to use the standard result for the centre of mass of a circular arc, a great many responses chose not to do anything other than use this formula. As a result, a common weak response was to use an angle of $\frac{\pi}{2}$ instead of $\frac{\pi}{4}$. Many successful responses opted for Pythagoras' rather than trigonometry.

(b) It was common to see good responses to this question, but weaker responses chose not to use completely correct mathematical working and often had brackets or factors of a missing from their solutions. Other weaker responses double-counted some of the lengths of the framework and a small number mistakenly assumed the shape was a lamina.

(c) A great number of responses struggled to maintain consistency with distances in their moments equations and a significant proportion of weaker responses thought that the force at D was kMg. A small number of otherwise good responses gave an approximate final answer without stating an exact one as part of their solution.

Question 4

(a) Although this printed answer was reached by the majority of learners, responses varied in the level of accuracy and structure. The strongest responses stated what equations were being used while weaker ones often made false claims about equality of expressions or had a great deal of working crossed (or cancelled) out so that sometimes the only visible writing was the printed answer. Better responses realised that for five marks some evidence of working before reaching the conclusion was needed.

(b) This proved a challenge for a notable proportion of learners, although many strong responses were seen. Weaker responses often assumed that there was no resultant force perpendicular to the slope, or that the acceleration acted parallel to the slope. Other responses had friction acting down the slope. A number of responses setup correct equations in two directions but were not then able to successfully eliminate unknowns to achieve an equation in $\tan\theta$.

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