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How ‘real’ are real-world contexts in A level mathematics problems.

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From the text: Since starting my teaching career in the 1970s, I have been aware of two philosophically different approaches to teaching pure mathematics, exemplified by two types of syllabus. On the one hand, in a ‘traditional’ approach, pure mathematics is treated as ‘pure’ mathematics, unsullied by the requirement to be useful in solving real-world problems. Questions are framed in purely mathematical terms, and do not refer to any material reality. The emphasis of questions is on testing the candidates’ ability to prove mathematical statements, to apply algebraic techniques and skills, and to construct mathematical arguments. On the other hand, a ‘modern’ approach (if such a soubriquet can be applied to syllabus development whose origins lie in the 1960s) emphasizes the applicability of mathematics to solve real-world problems. While such syllabuses inevitably test pure mathematical techniques, such as algebraic skills, questions are, wherever possible, framed in real-world contexts, and in doing so, involve an element of what might be described as ‘mathematical modelling’. This requires the student, in solving such problems, to engage in a degree of matching between the real world and pure mathematical ‘models’.

Classification: D30 D50

Keywords: A level mathematics; real-life mathematics; real-world context; problem posing; problem solving; pure approach; formal approach; applied approach; informal approach; transfer of training