Mathematics: Extension 1

Vectors Q1 transcript

(Duration 1 minute 59 seconds)

This is the HSC hub Mathematics curriculum support from the New South Wales Department of Education, my name is Daniel Proctor. This video outlines a solution to question one from the sample examination provided by the New South Wales Education Standards Authority for the Mathematics Extension one course. This question looks at Vectors.

The solution provided in this video demonstrates one way to unpack a question. There may be other methods. We encourage you to discuss alternative methods with your teacher.

Question one of the multiple-choice section provides four options for calculating the angle between vectors. We are asked to determine which expression relates to the angle between vectors seven, one and negative one, one given. Please press pause now to read the question.

Anytime a question is asked regarding angles between vectors, students should automatically think of the scalar product, also known as the dot product. Rearranging the scalar product formula gives an expression for calculating the cosine of the angle between the vectors.

By inspection, this expression will be negative as the scalar product of the vectors seven, one and negative one, one is negative. This automatically eliminates suggested answers A and B. Substituting in values for the scalar product and the magnitudes of the vectors calculates to be negative zero point six Therefore the solution is D.

End of Transcript