

## STEP II, 2021, Q6 EC

### Question 6

This was not a popular question and many of the attempts made did not score well. Part (i) was relatively successful with most candidates able to show that the perpendicular distance from O to the line segment AB must be less than R for the given constraints.

Part (ii) proved to be relatively simple for those who chose to draw a clear diagram, although some candidates chose to focus on the wrong triangle meaning that the wrong angles were used.

Part (iii) caused more difficulty and many candidates were not able to understand the significance of the phrase “much less than 1” and so candidates who made assumptions about variables tending to 0 rather than using small angle approximations often scored no marks.

Solutions in part (iv) often jumped too quickly to the result printed in the question. It is important that solutions to questions in which the result to be proved has been given contain sufficient detail to show all of the steps being taken.



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