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- This image shows a full page of white paper with ten horizontal dashed lines, typical of primary school handwriting practice paper. The lines are evenly spaced and extend across the width of the page. There is no text or other markings on the page.

The point C is on the circumference of the base of the cone. When the combined solid is freely suspended from C and hanging in equilibrium, the diameter through C makes an angle α with the downward vertical, where $\tan \alpha = \frac{1}{8}$.

- (b)** Given that the centre of mass of the combined solid is within the cylinder, find the value of k . [4]

[illegible]