

Leave
blank

6. A force \mathbf{F} is given by $\mathbf{F} = (10\mathbf{i} + \mathbf{j})\text{N}$.
- (a) Find the exact value of the magnitude of \mathbf{F} . (2)
- (b) Find, in degrees, the size of the angle between the direction of \mathbf{F} and the direction of the vector $(\mathbf{i} + \mathbf{j})$. (4)

The resultant of the force \mathbf{F} and the force $(-15\mathbf{i} + a\mathbf{j})\text{ N}$, where a is a constant, is parallel to, but in the opposite direction to, the vector $(2\mathbf{i} - 3\mathbf{j})$.

- (c) Find the value of a . (5)

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA



DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

Leave
blank

Question 6 continued

Q6

(Total 11 marks)



P 6 1 2 9 3 A 0 1 9 2 4