

Solutionbank M1

Heinemann Modular Maths for Edexcel AS and A-level

4 Forces

Exercise E, Question 6

Question:

Forces F_1 , F_2 and F_3 are in equilibrium.

(a) If $F_1 = (i + j) \text{ N}$, and $F_3 = (7i + 8j) \text{ N}$, find F_2 .

(b) If $F_1 = (2i + j) \text{ N}$, $F_2 = (-4i + j) \text{ N}$, find F_3 .

Solution:

$$\begin{aligned} & (i + j) + F_2 + (7i + 8j) = 0 \\ \text{(a)} \quad \therefore F_2 & = -8i - 9j \end{aligned}$$

$$\begin{aligned} & (2i + j) + (-4i + j) + F_3 = 0 \\ \text{(b)} \quad \therefore F_3 & = 2i - 2j \end{aligned}$$

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