

# Solutionbank M1

Heinemann Modular Maths for Edexcel AS and A-level

## 5 Newton's laws of motion

### Exercise B, Question 3

#### Question:

Forces of  $(i + j)$  N,  $(3i - 2j)$  N and  $(i + 3j)$  N act on a particle of mass 2 kg. Find the acceleration of the particle in the form  $ai + bj$ .

#### Solution:

Newton's 2nd Law

$$\begin{aligned}(i + j) + (3i - 2j) + (i + 3j) &= 2 \times a \\ \therefore 5i + 2j &= 2 \times a \\ \therefore \text{acceleration, } a &= 2.5i + j \text{ m s}^{-2}\end{aligned}$$

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