

Solutionbank M1

Heinemann Modular Maths for Edexcel AS and A-level

4 Forces

Exercise C, Question 6

Question:

Two forces $\begin{bmatrix} 7 \\ 1 \end{bmatrix}$ and $\begin{bmatrix} -6 \\ 3 \end{bmatrix}$ act at a point. Calculate the magnitude of the resultant of these two forces.

Solution:

$$\mathbf{R} = \begin{bmatrix} 7 \\ 1 \end{bmatrix} + \begin{bmatrix} -6 \\ 3 \end{bmatrix}$$

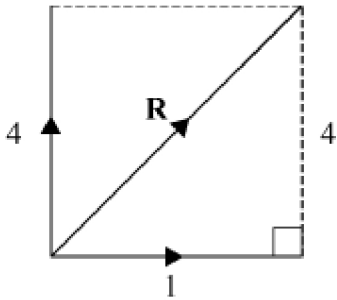
$$\text{i.e. } \mathbf{R} = \begin{bmatrix} 1 \\ 4 \end{bmatrix}$$

$$\therefore |\mathbf{R}| = \sqrt{1^2 + 4^2}$$

$$|\mathbf{R}| = \sqrt{17}$$

$$|\mathbf{R}| = 4.1231\dots$$

$$\text{i.e. } |\mathbf{R}| = 4.12 \text{ N (3 s.f.)}$$



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