

Solutionbank M1

Heinemann Modular Maths for Edexcel AS and A-level

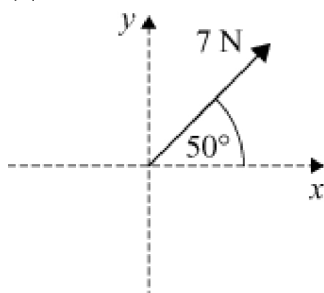
4 Forces

Exercise D, Question 1

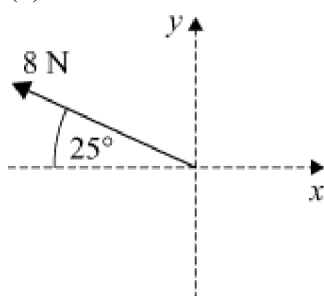
Question:

Find the components of the following forces in the directions of the x -axis and y -axis.

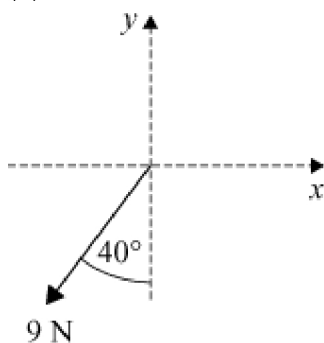
(a)



(b)



(c)



Solution:

$$\begin{aligned} \text{(a) in } x\text{-direction } & 7 \cos 50^\circ = 4.4995\dots = 4.50 \text{ N (3 s.f.)} \\ \text{in } y\text{-direction } & 7 \sin 50^\circ = 5.3623\dots = 5.36 \text{ N (3 s.f.)} \end{aligned}$$

$$\begin{aligned} \text{(b) in } x\text{-direction } & -8 \cos 25^\circ = -7.2504\dots = -7.25 \text{ N (3 s.f.)} \\ \text{in } y\text{-direction } & 8 \sin 25^\circ = 3.3809\dots = 3.38 \text{ N (3 s.f.)} \end{aligned}$$

$$\begin{aligned} \text{(c) in } x\text{-direction } & -9 \sin 40^\circ = -5.7850\dots = -5.79 \text{ N (3 s.f.)} \\ \text{in } y\text{-direction } & -9 \cos 40^\circ = -6.8943\dots = -6.89 \text{ N (3 s.f.)} \end{aligned}$$

