

Solutionbank M1

Heinemann Modular Maths for Edexcel AS and A-level

4 Forces

Exercise E, Question 10

Question:

A mass of 5 kg is suspended by two light, inextensible strings. The angles between the strings and the vertical are 30° and 60° . Find the tensions in the strings.

Solution:

Resolving perpendicular to T_2

$$T_1 \sin 60^\circ = 49.0 \times \cos 30^\circ$$

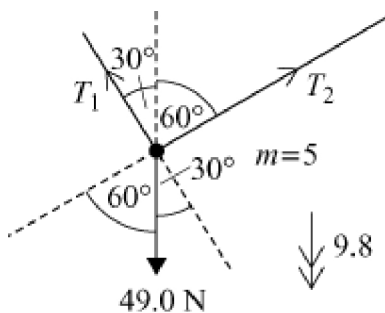
$$\therefore T_1 = 42.435\dots$$

$$\text{i.e. } T_1 = 42.4 \text{ N (3 s.f.)}$$

Resolving perpendicular to T_1

$$T_2 \sin 30^\circ = 49.0 \times \cos 60^\circ$$

$$T_2 = 24.5 \text{ N (3 s.f.)}$$



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