1.

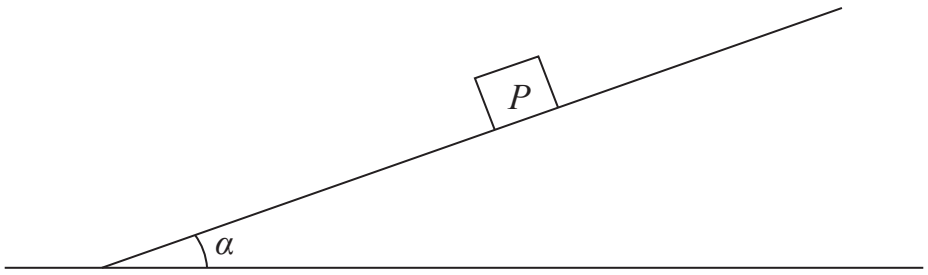


Figure 1

A fixed rough plane is inclined to the horizontal at an angle α, where $\tan\alpha = \frac{5}{12}$

A package P of mass 2.6 kg is placed on the plane, as shown in Figure 1.
The package is pushed, with **constant speed**, up a line of greatest slope of the plane.
The force pushing P acts parallel to the path of P.

The coefficient of friction between P and the plane is $\frac{1}{5}$

The package is modelled as a particle and air resistance is negligible.

Use the model to find the **total** work done in pushing P, at a **constant speed**, a distance of 20 m up the plane.

(5)

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Question 1 continued

(Total for Question 1 is 5 marks)