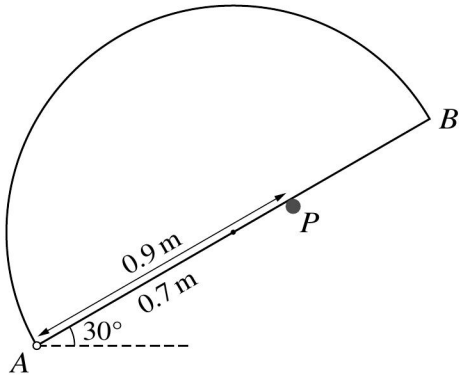

A uniform semicircular lamina of radius 0.7 m and weight 14 N has diameter AB. The lamina is in a vertical plane with A freely pivoted at a fixed point. The straight edge AB rests against a small smooth peg P above the level of A. The angle between AB and the horizontal is $30°$ and $AP = 0.9$ m (see diagram).

(i) Show that the magnitude of the force exerted by the peg on the lamina is 7.12 N, correct to 3 significant figures. [4]

(ii) Find the angle with the horizontal of the force exerted by the pivot on the lamina at A. [3]