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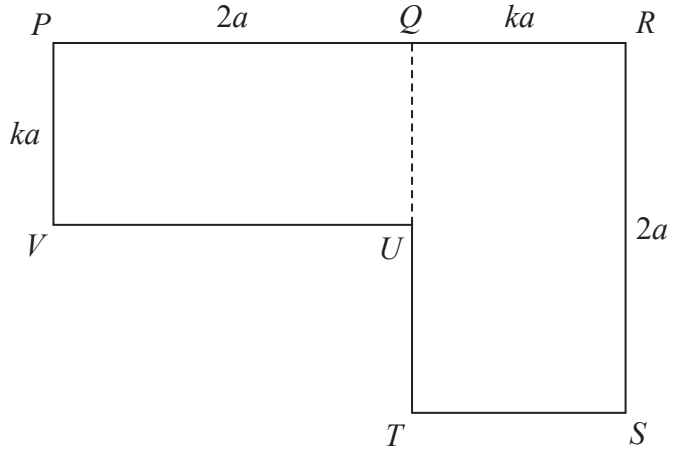


Figure 2

The uniform lamina $PQRSTUV$ shown in Figure 2 is formed from two identical rectangles, $PQUV$ and $QRSTU$.
The rectangles have sides $PQ = RS = 2a$ and $PV = QR = ka$.

(a) Show that the centre of mass of the lamina is $\left(\frac{6+k}{4}\right)a$ from PV

(3)

The lamina is freely suspended from P and hangs in equilibrium with PR at an angle of α to the downward vertical.

Given that $\tan\alpha = \frac{7}{15}$

(b) find the value of k.

(6)

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