

6.

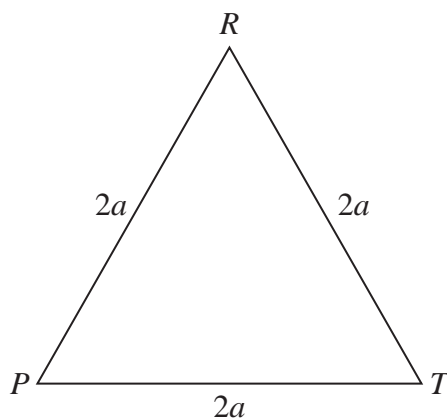


Figure 3

Figure 3 shows a uniform equilateral triangular lamina PRT with sides of length $2a$.

- (a) Using calculus, prove that the centre of mass of PRT is at a distance $\frac{2\sqrt{3}}{3}a$ from R . (6)

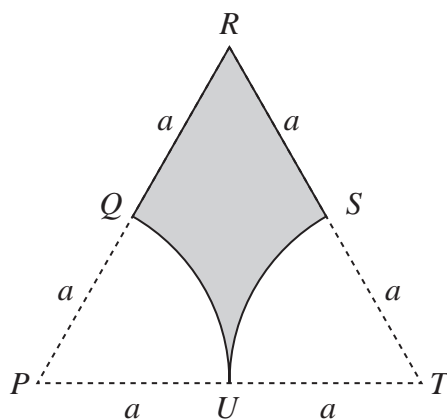


Figure 4

The circular sector PQU , of radius a and centre P , and the circular sector TUS , of radius a and centre T , are removed from PRT to form the uniform lamina $QRSU$ shown in Figure 4.

- (b) Show that the distance of the centre of mass of $QRSU$ from U is $\frac{2a}{3\sqrt{3}-\pi}$ (6)



