(1)

## A metal bar has a uniform cross-section in the shape of a trapezium $A B C D$.



Diagram not drawn to scale.

The area of the cross-section of the metal bar is $48.7 \mathrm{~cm}^{2}$
It is 12.8 cm long and has a mass of 3.2 kg .
Calculate the density of the metal from which the bar is made, giving your answer in $\mathrm{g} / \mathrm{cm}^{3}$.
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Diagram not drawn to scale.
The diagram shows a cuboid of length 53.1 cm . The cross-section, $P Q R S$, is such that $P R=24.7 \mathrm{~cm}$ and $Q R=16.3 \mathrm{~cm}$.
(a) Calculate the length of $P Q$.
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(b) The density of the material from which the cuboid is made is $4.3 \mathrm{~g} / \mathrm{cm}^{3}$. Calculate the mass of the cuboid in kilograms.
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