How Can We Make Optimum Use of Our Resources?

Part A

A company manufactures plastic bottles used for soft drinks. The main body of the bottle is in the shape of a rounded-square prism.

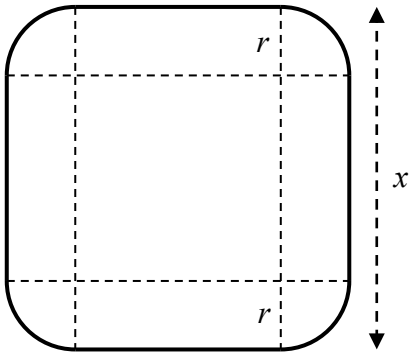
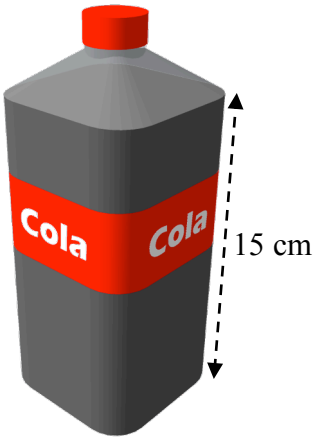


Figure 1: A rounded-square

The main body of the bottle has a height of 15 cm and a volume of 525 cm^3.



1. Show that the area of the rounded-square must be 35 cm^2.

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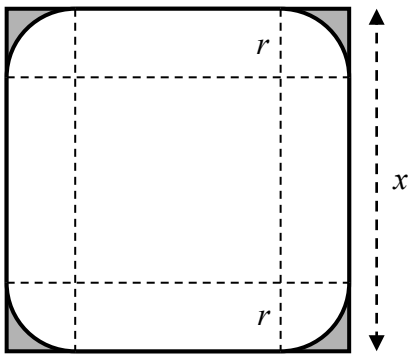
2. a) Show that the area of the shaded region outside of the rounded-square below is equal to $(4-\pi)r^2$.



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   b) Hence show that the area of the rounded-square is equal to $x^2 + (\pi - 4)r^2$.

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Since this investigation is suitable to be given under test conditions please contact me using the “Contact” tab for the complete version of this file.