Material Optimization for CSR Grain Storage Containers

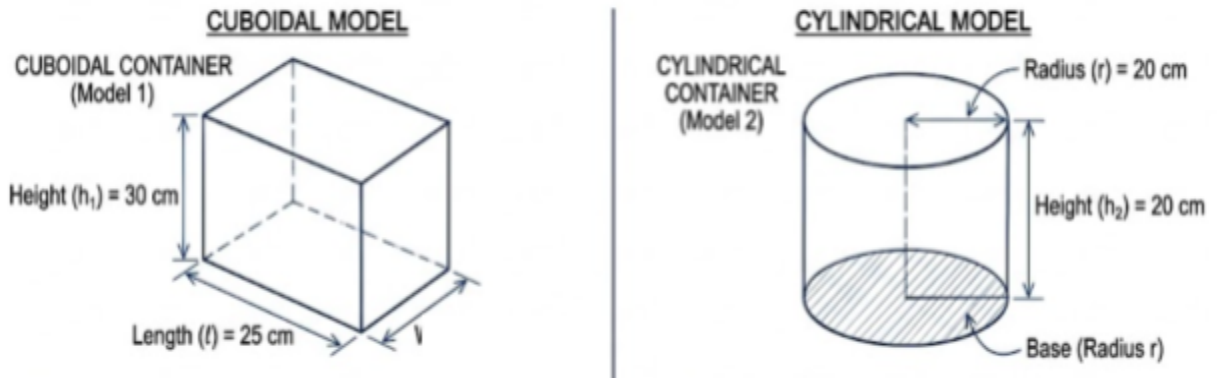
The Alliance company is distributing containers to store the grain as part of its corporate social responsibility. Under this, they are going to distribute containers to the needy. For this, they are going to purchase the metallic sheets and give the order to make 10000 containers to a company.

You are a trainee under the production department, and you are looking for a ***container that uses fewer metallic sheets (less material) to make it cost-effective***.

The company proposes two types of container models, a Cuboidal (with top and bottom bases) and a cylindrical model (with top and bottom bases), such that the volume of the two containers is the same.

The dimensions of the cylinder container are as follows:
The radius of the base is 20 *cm,* and the height of the cylinder is 20 *cm*.

The dimensions of the cuboidal container are as follows:
Height is 30 *cm,* and length is 25 *cm*.



Identify the relevant elements of an authentic real-life situation to find out the amount of metal required to make containers.

(Criterion D: Strand i)

Select and **apply** the appropriate mathematical strategy/ies to **calculate** the amount of metal sheets required to make a piece for each proposed container.

(Criterion C: Strand v) (Criterion D: Strand ii, iii)

Explain the degree of accuracy of a solution.

(Criterion D: Strand iv)

Explain to your production manager by writing a short brief report for the selection of the shape of the container, considering the metallic sheets used.

(Criterion D: strand v)