

# Getting Started

## You will need

- a calculator
- centimetre grid paper

## Designing a Juice Container

Hoshi and Tran are designing a container to hold 1 L of juice. They decide to try the shape of a triangular prism.



## ? What dimensions can Hoshi and Tran use for the juice container?

- What is the least possible volume, in cubic centimetres, for the container? ( $1 \text{ cm}^3 = 1 \text{ mL}$ )
- About 10% of the space in the container will be empty. How many cubic centimetres do Hoshi and Tran need for the total volume of the container?
- If the container is 10 cm deep, what must the area of the triangular base be?
- What dimensions could Hoshi and Tran use for the triangular base?

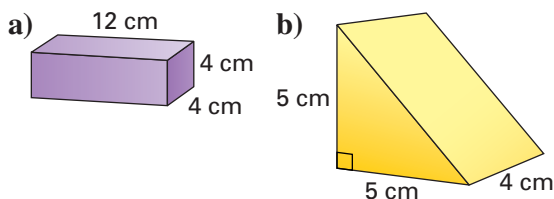


## Do You Remember?

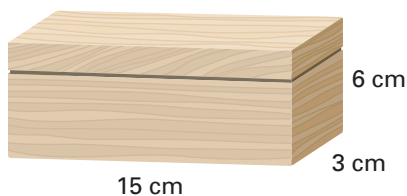
1. What unit (centimetres, square centimetres, cubic centimetres, litres, or millilitres) would you use to measure each of the following?

- the quantity of fuel in a car's gas tank
- the length of trim on a blanket
- the amount of paint to cover a playhouse
- the space inside a storage box

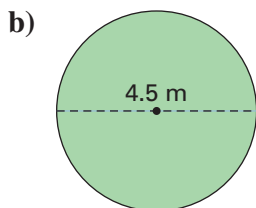
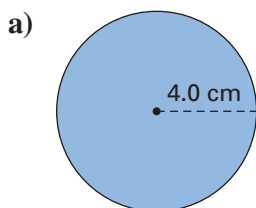
2. Draw a net for each prism using centimetre grid paper. Calculate the surface area of each prism to the nearest square centimetre.



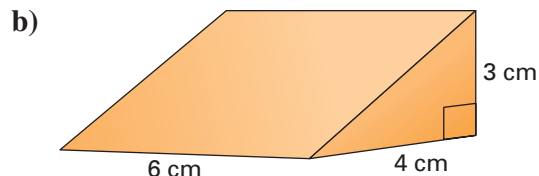
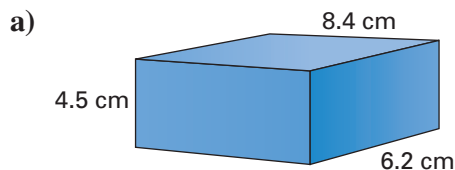
3. Sarah is covering the faces of this wooden box with fabric for a gift. How much fabric will she need to cover the box?



4. Calculate the area and circumference of each circle.

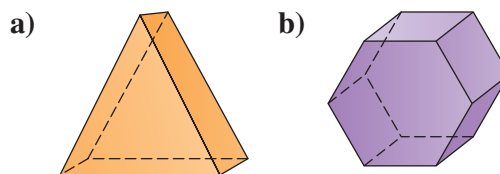


5. Calculate the volume of each prism.



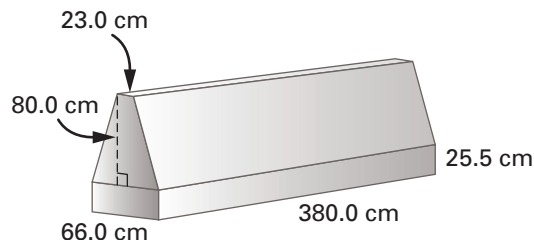
6. How much water would you need to fill each prism in question 5? ( $1 \text{ cm}^3 = 1 \text{ mL}$ )

7. List the number of edges, faces, and vertices on each prism.



8. Centimetre cubes need to be packed in a box that has a volume of  $36 \text{ cm}^3$ . Sketch three possible boxes that are rectangular prisms.

9. Think of this cement traffic barrier as a rectangular prism with a trapezoidal prism on top.



- What is the area of the base of each prism?
- What is the volume of each prism?
- What is the total volume of the cement needed to make the traffic barrier?