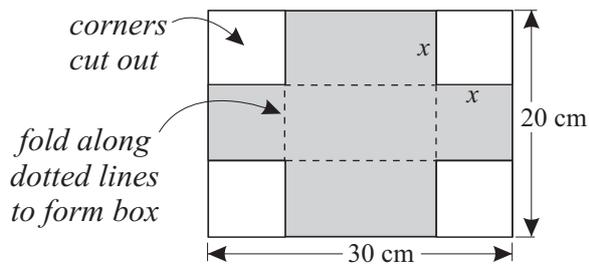


Name: _____

1. A cardboard box can be made by cutting squares from each of the corners of a rectangular sheet of cardboard.



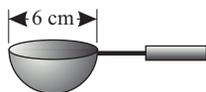
The sheet of cardboard is 30 cm by 20 cm. The side length of the square cut-out is x cm. Using the five different values for x given below, complete the table, showing the length, width and volume of each box that would be formed.

x	Length (cm)	Width (cm)	Volume (cm ³)
2			
3			
4			
5			
6			

By examining the magnitude of the volume for each different value of x , make an estimate of the value of x that would give the largest volume of the formed box.

$x =$

2. The cup of an icecream scoop is in the shape of a hemisphere with a diameter of 6 cm.



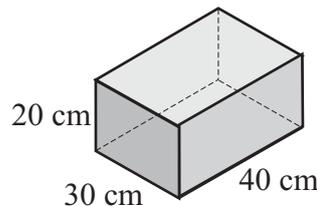
- (a) Find the volume, in cm³, of one level scoop of icecream.
Give answer correct to one decimal place.

- (b) How many level scoops could be taken from a 4 litre tub of icecream?

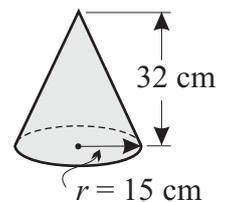
3. A cylindrical preserving jar has an internal diameter of 8 cm and a height of 20 cm.
(a) Calculate the volume, in cm³, of the jar.
Give answer correct to one decimal place.

- (b) Assume an apricot is spherical and has a diameter of 4 cm. If 20 apricots are packed in the jar, how much syrup, in mL, would be required to fill the jar?
Give answer correct to one decimal place.

4. This block of sculptor's clay is moulded into solid cones with the dimensions shown.



Block of clay



Cone

By calculating the volume of the clay and the cone, find the number of cones that would be made from the block.