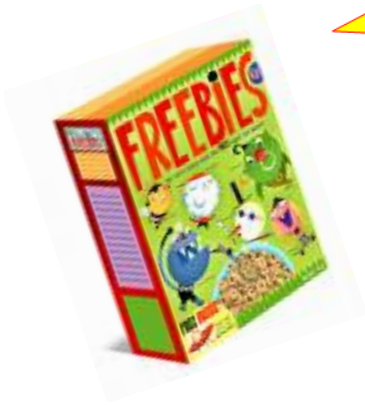


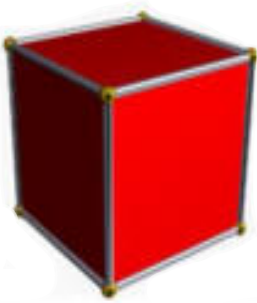
Math 10

**GEOMETRY
AND
PACKAGING**

Math 10

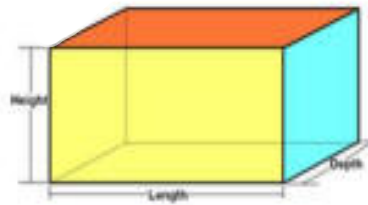


The naming game :)



Cube

1



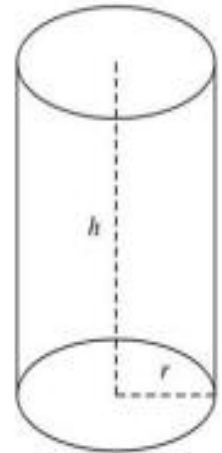
Rectangular Prism

2



Sphere

3



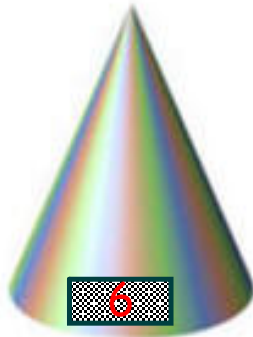
Cylinder

4



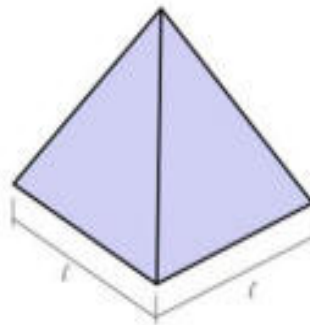
Triangular Prism

5



Cone

6



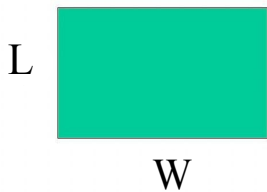
Pyramid

7

Area of Shapes

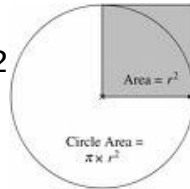
Area of a Rectangle

A = length x width



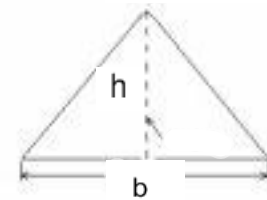
Area of a Circle

$$A = \pi r^2$$



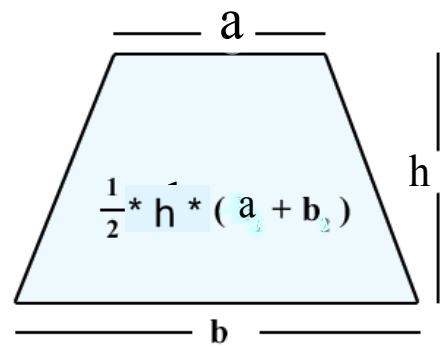
Area of Triangle

$$A = \frac{1}{2} (\text{base} \times \text{height})$$



Area of Trapezoid

$$A = \frac{1}{2} \text{height} (a + b)$$



Volume of Containers

To save money volume should be close as possible to the volume of the product

We have to use cross-sections to help determine the area and volume of a container

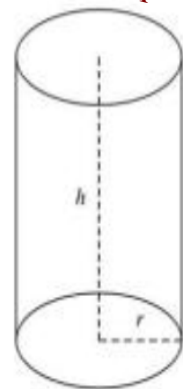
Prisms



Triangular Prism



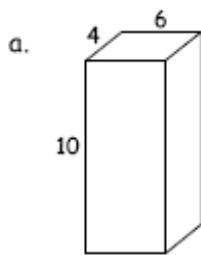
Rectangular Prism



Cylinder

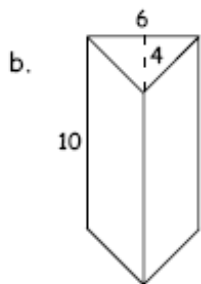
$$\text{Volume} = (\text{Area of the base}) \times \text{Height}$$

Find the volumes (dimensions are cm):



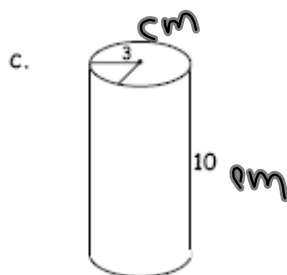
$$\left(\frac{b \times h}{2}\right) \times H$$

$$\frac{6 \times 4}{2}$$



$$(12) \times 10$$

$$= 120$$



$$A_{\text{of } B} \times H$$

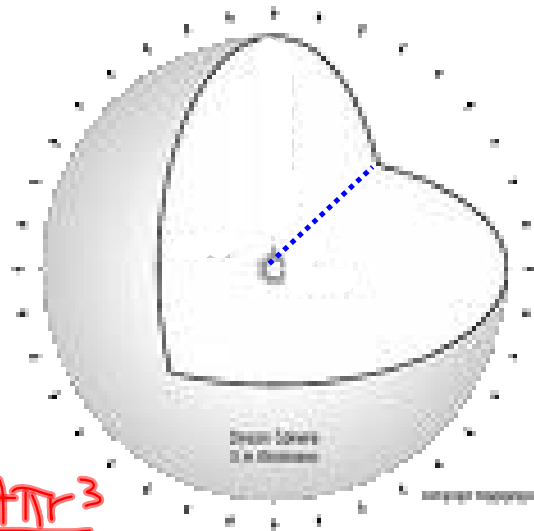
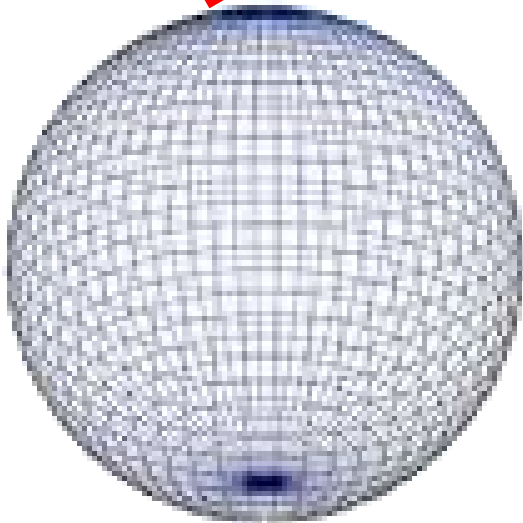
$$\pi r^2 \times H$$

$$(3.14)(3)^2 \times 10$$

$$(3.14)(9) \times 10$$

$$= 282.6 \text{ cm}^3$$

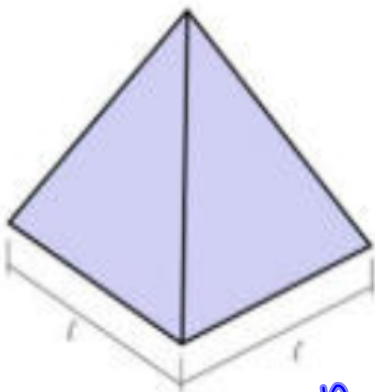
Sphere



$$V = \frac{4\pi r^3}{3}$$

$$V = \frac{4}{3}\pi r^3$$

Anything that comes to a point !!



Pyramid

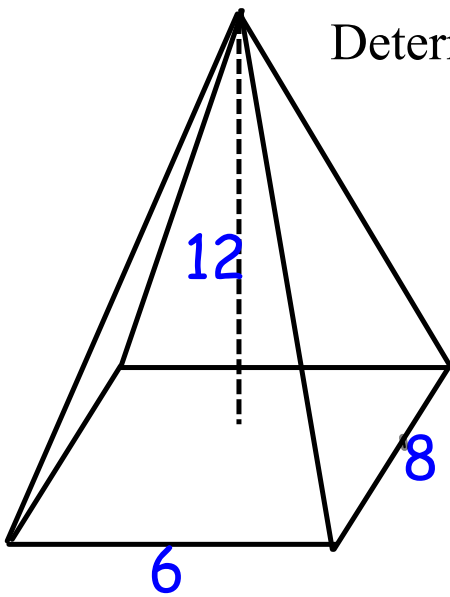
Pyramid
or
Cone

Area of Base x Height
3



Cone

$$V = \frac{1}{3} (\text{Area of base}) \times \text{Height}$$



Determine the Volume

Step 1) Find the area of the base

$$l \times w \\ 6 \times 8 = 48$$

Step 2) This is a pyramid.

Use the equation to find volume.

$$(A \text{ of } B) \times H \\ 48 \times 12$$

Step 3) $= 576$ comes to a point!

$$576 / 3 \\ = 192$$

A "DrumStick" icecream bar has the following dimensions shown.
What is the volume?



$$\frac{(A \text{ of } B) \times H}{3}$$

$$\frac{(\pi r^2) \times H}{3}$$

$$\frac{3.14(4)^2 \times 13}{3}$$

$$\frac{3.14(16) \times 13}{3}$$

$$\frac{653.12}{3}$$

$$= 217.7$$

