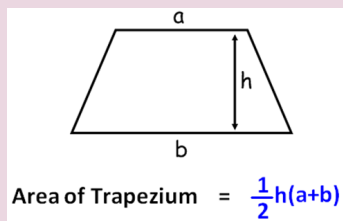
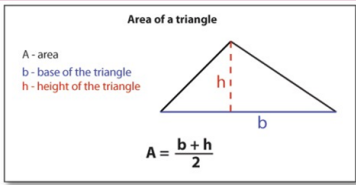
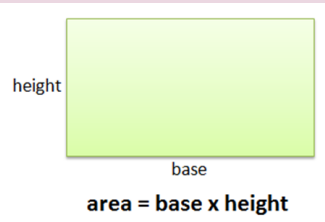


Area

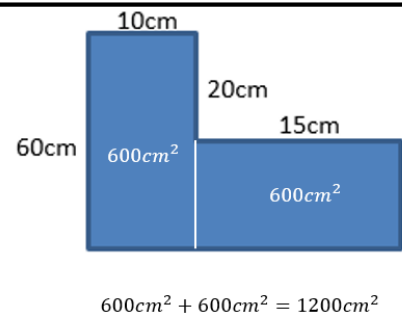
Formulas



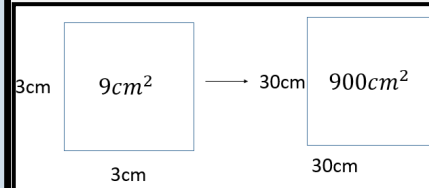
Compound Area

Find the area of the Compound shape

- 1) Split the shape up
- 2) Find any missing sides
- 3) Calculate the area of both shapes
- 4) Add the areas together



Converting Units



If the length increases by a scale factor k , the area increases by this squared, i.e. k^2

Convert 5m² to cm²

1m = 100cm
 $100^2 = 10,000$
 $5 \times 10,000 = 50,000cm^2$

- Steps:
Find the conversion scale factor
Square it
Multiply by the original

Bounds

The upper bound of a number is the highest value before rounding.
The lower bound of a number is the lowest value before rounding.

A plank of wood is 2.4cm to one decimal place

Find the upper and lower bound

Lower Bound = 2.35 **Upper Bound = 2.45**

Bounds always end in 5

Bounds

Multiplying with Bounds

The upper bound of a multiplication is always the two upper bounds multiplied together

The lower bound of a multiplication is always the two lower bounds multiplied together

Dividing with Bounds

The upper bound of a fraction is always

$$\frac{\text{Upper bound of the numerator}}{\text{Lower Bound of the denominator}}$$

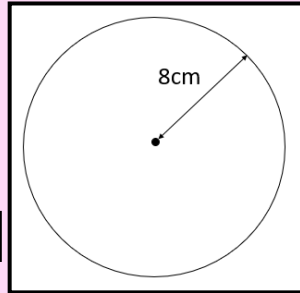
The lower bound of a fraction is always

$$\frac{\text{Lower bound of the numerator}}{\text{Upper Bound of the denominator}}$$

Unit 7: Area and Volume

Area of a circle

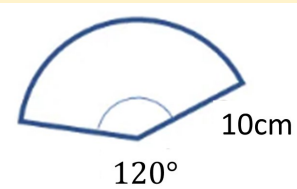
The formula for the area of the circle is πr^2



$8^2 \times \pi = 201.1cm^2$

Area of a sector

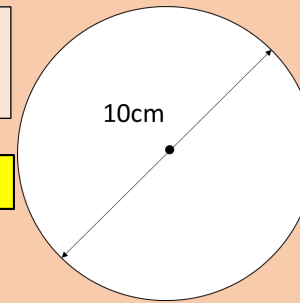
$$\frac{\theta}{360} \times \pi r^2$$



$\frac{120}{360} \times 100\pi = 104.7cm^2$

Circumference of a circle

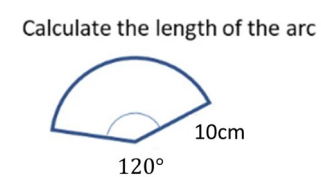
The formula for the circumference of the circle is πd



$10 \times \pi = 314cm$

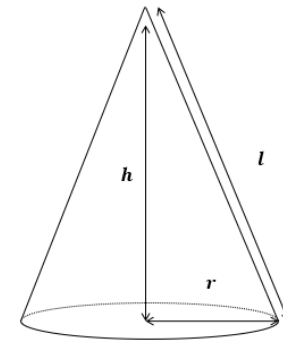
Arc Length

$$\frac{\theta}{360} \times \pi d$$



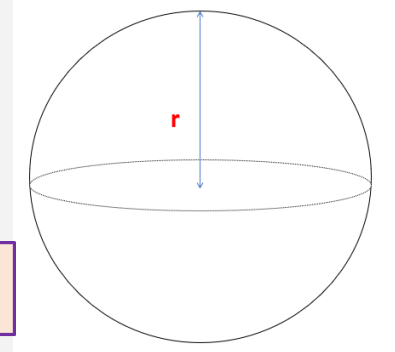
$\frac{120}{360} \times 20\pi = 20.9cm$

Cone



$Volume = \frac{1}{3}\pi r^2 h$

Spheres

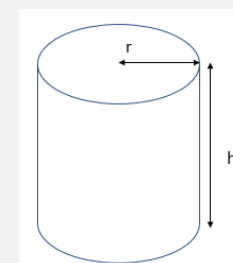


$Volume = \frac{4}{3}\pi r^3$

$Surface Area = 4\pi r^2$

The formula for the volume of a cylinder is $\pi \times r^2 \times h$

Cylinder

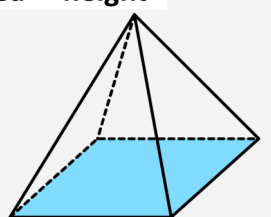


The formula for the surface area of a cylinder is

$A = 2\pi r h + 2\pi r^2$

Pyramid

Volume of Pyramid = $\frac{1}{3} \times \text{base area} \times \text{height}$



Circles

Pyramids, cones, cylinders & spheres