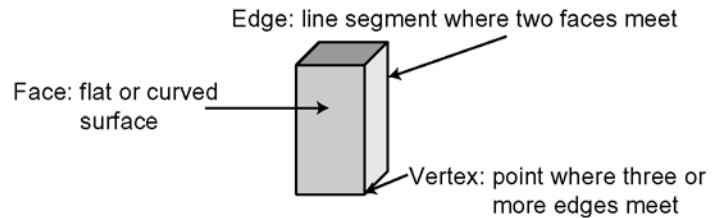## Three-Dimensional Objects
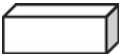
You can describe a three-dimensional (3-D) object by counting its **faces**, **edges**, and **vertices**.

Edge: line segment where two faces meet

Face: flat or curved surface

Vertex: point where three or more edges meet

1. Identify the name and the number of faces, edges, and vertices for each object.

| Object	Name	Faces	Edges	Vertices
a)				
b)				
c)				

Circles

A **circle** is a set of points that are an equal distance away from a fixed point, called the centre.

The **radius** is the distance from the centre of a circle to the outside edge. The letter r is often used to represent the radius.

The **diameter** is the distance across a circle through its centre. The letter d is often used to represent the diameter.

The diameter is two times the radius: $d = 2r$.
The radius is half the diameter: $r = d \div 2$.

The distance around a circle is called the **circumference**. The letter C is often used to represent the circumference.
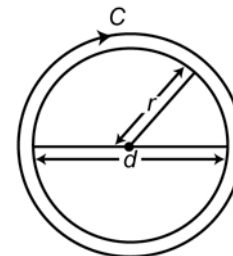
To find the circumference of a circle, use the formula $C = \pi \times d$ or
$C = 2 \times \pi \times r$. Use 3.14 as an approximate value for π.

$C = \pi \times d$ $C = 2 \times \pi \times r$
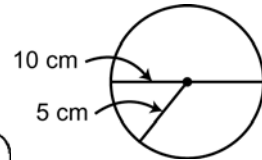$C \approx 3.14 \times 10$ $C \approx 2 \times 3.14 \times 5$ 10 cm
$C \approx 31.4$ $C \approx 31.4$ 5 cm
The circumference is 31.4cm.

$C = \pi \times d$ M E
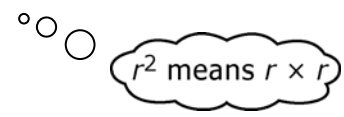$C \approx 3 \times 10$
$C \approx 30$

The area, A, of a circle is the space the circle encloses.
To find the area of a circle, use the formula $A = \pi \times r^2$ or $A = \pi r^2$
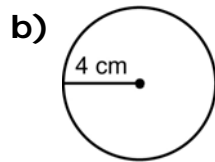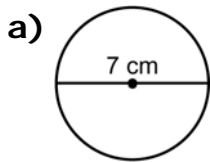
$A = \pi \times r^2$
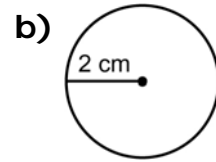$A \approx 3.14 \times 5 \times 5$ r^2 means $r \times r$
$A \approx 78.5$
The area is 78.5 cm².

2. Find the circumference of each circle   **3.** Find the area of each circle to the
to the nearest tenth of a centimetre.   nearest tenth of a centimetre.

a)   **b)**   **a)**   **b)**
7 cm   4 cm   8 cm   2 cm
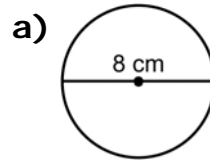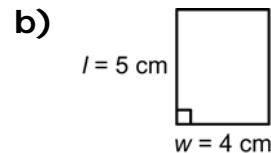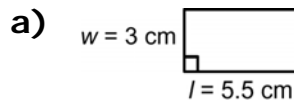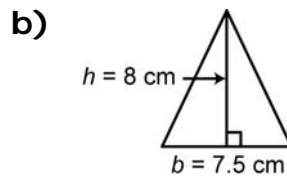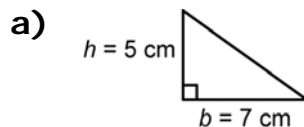
Area Formulas

The **area** is the number of square units needed to cover a surface.

Use the formulas to calculate the area of these shapes to the nearest tenth of a
centimetre.

4. Rectangle: **a)** $w = 3$ cm   **b)**
   $A = l \times w$ $l = 5$ cm
                              $l = 5.5$ cm $w = 4$ cm

5. Triangle: **a)** $h = 5$ cm   **b)**
   $A = (b \times h) \div 2$ $h = 8$ cm
                              $b = 7$ cm $b = 7.5$ cm

6. Parallelogram: **a)** $h = 2.5$ cm   **b)** $h = 2.5$ cm
   $A = b \times h$ $b = 10.5$ cm $b = 20$ cm