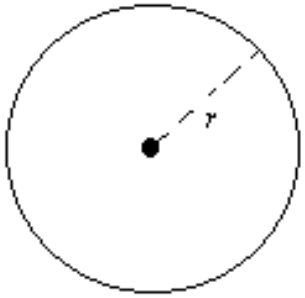
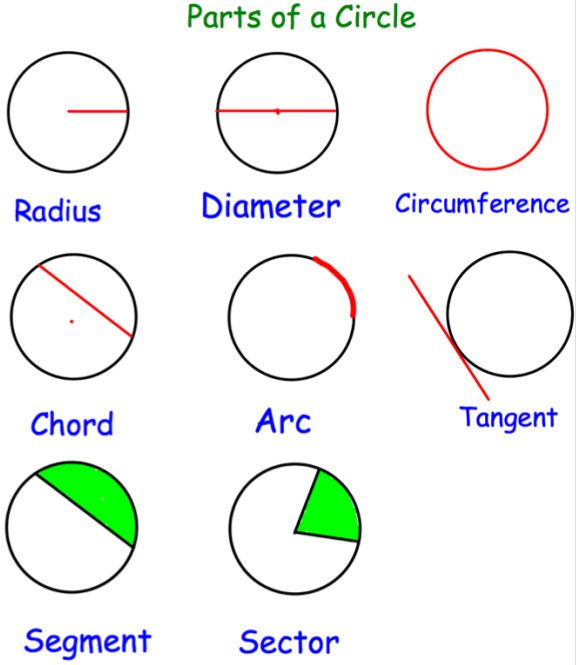
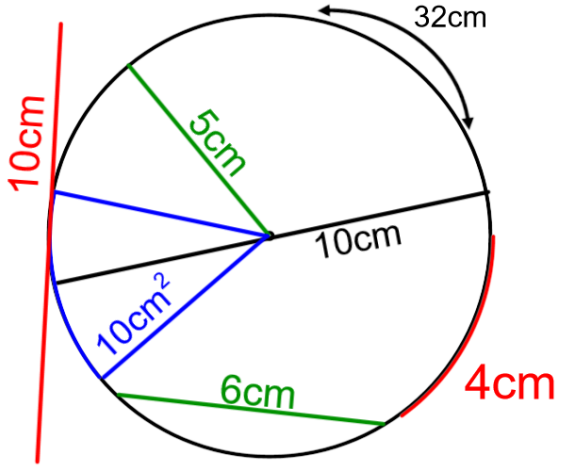
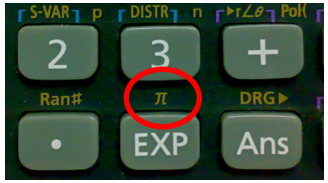
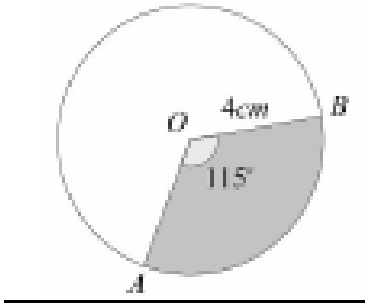
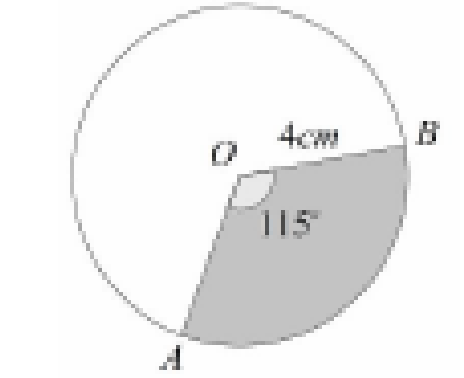
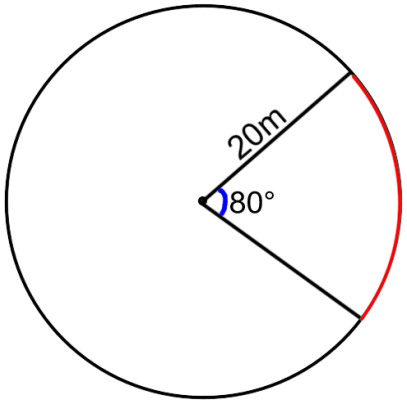
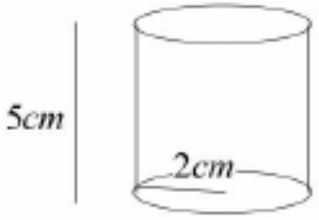
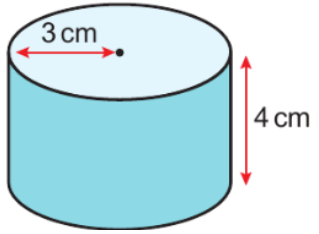
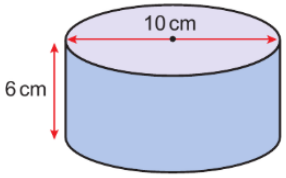
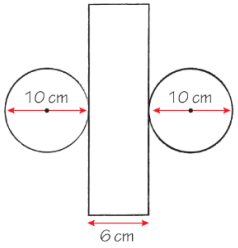
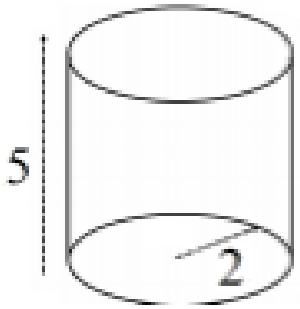
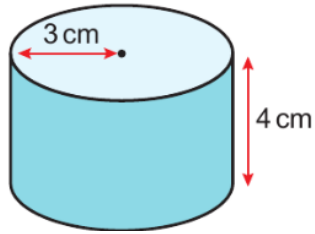
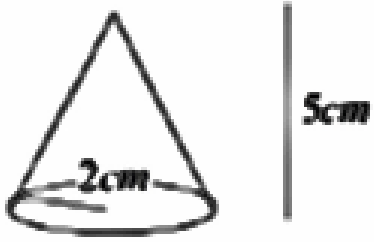
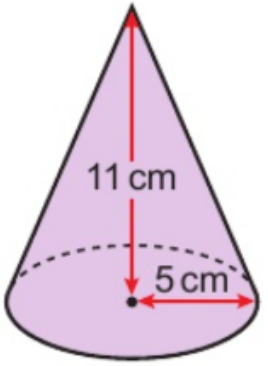
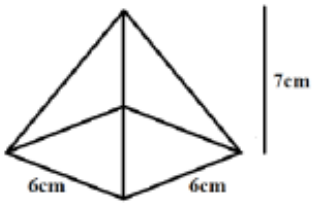
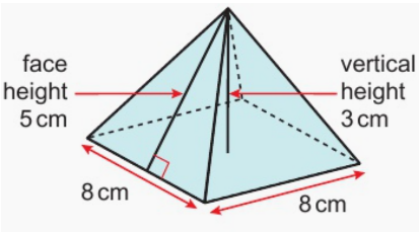
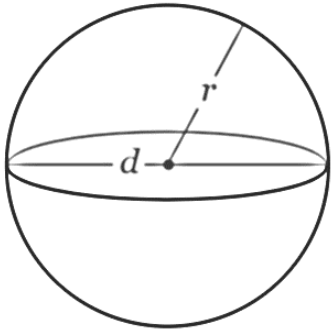
GCSE Mathematics – Unit 17: Perimeter and Area 2 **Name:……..**

Topic/Skill	Definition/Tips	Example	Your Turn
Circle	A circle is the locus of all points **equidistant** from a central point.		What is a **locus**? What does **equidistant** mean?
Parts of a Circle	**Radius** – the **distance** from the **centre** of a circle to the **edge** **Diameter** – the total **distance** across the **width** of a circle **through the centre**. **Circumference** – the **total distance** around the **outside** of a circle **Chord** – a **straight line** whose **end points lie on a circle** **Tangent** – a **straight line** which **touches** a circle at exactly **one point** **Arc** – a **part of the circumference** of a circle **Sector** – the **region** of a circle enclosed by **two radii** and their intercepted **arc**		 What is the length of the… Circumference :_____ Diameter :_____

	Segment – the **region** bounded by a **chord** and the **arc** created by the chord		Arc :_____ Radius :_____
Radius and Diameter	The **diameter** is always double the **radius**	If the radius is 5m, the diameter will be 10m If the diameter is 50cm, the radius will be 25cm	If the radius is 20cm, the diameter will be _____ If the diameter is 300m, the radius will be _____
π ('pi')	Pi is the circumference of a circle divided by the diameter. $\pi \approx 3.14$		Find π on your calculator and write out the first 6 digits:
Circumference of a Circle	$C = \pi d$ which means 'pi x diameter' If the radius was 5cm, then: $C = \pi \times 10 = 31.4cm$	Radius: 30cm Circumference: -- Diameter: 50cm Circumference:	
Area of a Circle	$A = \pi r^2$ which means 'pi x radius squared'. If the radius was 5cm, then: $A = \pi \times 5^2 = 78.5cm^2$	Radius: 30cm Area: -- Diameter: 50cm Area:	
Arc Length of a Sector	The arc length is part of the circumference.	Arc Length = $\frac{115}{360} \times \pi \times 8 = 8.03cm$	**Find a cm:**

	Take the **angle** given **as a fraction over 360°** and **multiply** by the **circumference**.		
Area of a Sector	The area of a sector is part of the total area. Take the **angle** given **as a fraction over 360°** and **multiply** by the **area**.	Area = $\frac{115}{360}\times\pi\times4^2 = 16.1cm^2$ 	 **Find the area of the sector shown.**
Volume of a Cylinder	$V = \pi r^2 h$ Remember that a cylinder is a type of **prism,** so you just need to **find the area of the cross-section** (the circle) and **multiply by the height.**	 $V = \pi(4)(5)$ $= 62.8cm^3$	 **Find the volume**

Surface Area of a Cylinder	**Curved Surface Area =** πdh or $2\pi rh$ **Total SA =** $2\pi r^2 + \pi dh$ or $2\pi r^2 + 2\pi rh$  	 $Total\ SA = 2\pi(2)^2 + \pi(4)(5) = 28\pi$	 **Find the surface area**
Volume of a Cone	$V = \frac{1}{3}\pi r^2 h$ h **= the height of the cone**	 $V = \frac{1}{3}\pi(4)(5)$ $= 20.9\text{cm}^3$	**Find the volume** 

Volume of a Pyramid	$Volume = \frac{1}{3}Bh$ where B = area of the base	 $V = \frac{1}{3}\times 6\times 6\times 7 = 84cm^3$	**Find the volume** 
Volume of a Sphere	$V = \frac{4}{3}\pi r^3$ Look out for **hemispheres** – just halve the volume of a sphere	Find the volume of a sphere with diameter 10cm.  $V = \frac{4}{3}\pi(5)^3 = \frac{500\pi}{3}cm^3$	**Find the volume of a sphere with….** **A radius of 12cm** **A diameter of 20cm** **A circumference of 50cm**