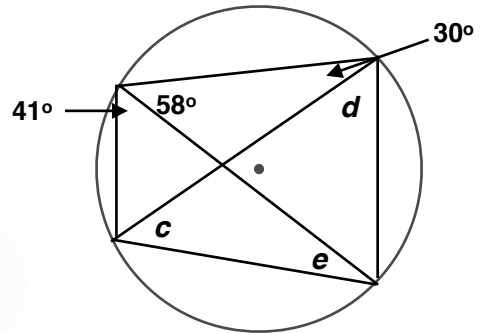


# Cyclic Quadrilaterals

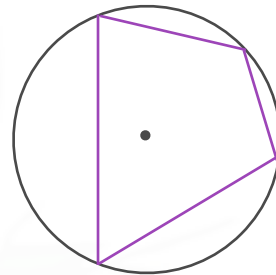
## Starter

1. (Review of last lesson) Find the marked angles.



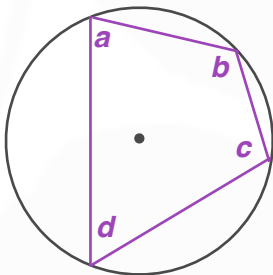
## Notes

A **cyclic quadrilateral** is a 4-sided shapes whose vertices all lie on the circumference of a circle.



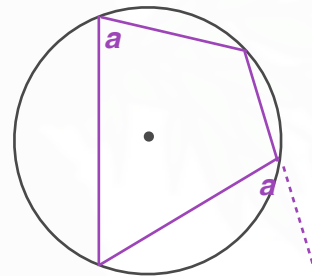
## Circle theorems

4. The opposite angles of a cyclic quadrilateral add up to 180 degrees.
5. The exterior angle of a cyclic quadrilateral equals the opposite interior angle.



$$a + c = 180^\circ$$

$$b + d = 180^\circ$$

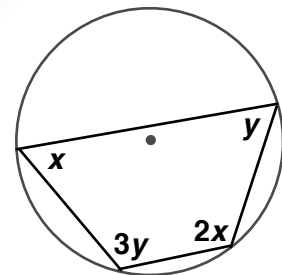
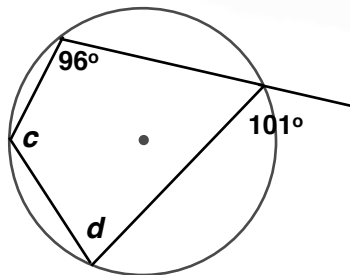
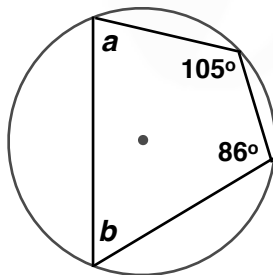


**E.g. 1** Find the marked angles, giving as reason for your answers:

(a)

(b)

(c)



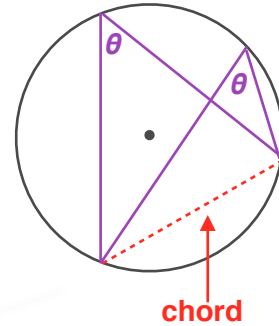
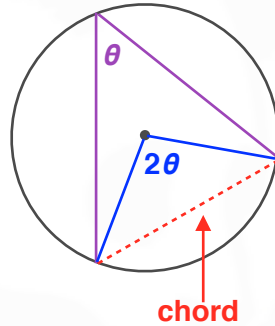
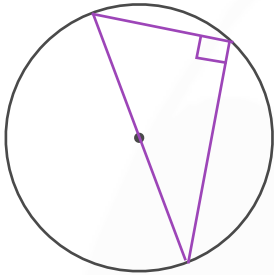
Video: [Circle theorems](#)  
Video: [Cyclic quadrilaterals](#)

**Exercise**

9-1 class textbook: p77 E3.2 Qu 1-15 odd, 16-20  
A\*-G class textbook: p70 E3.2 Qu 1-4 odd, 15-20  
9-1 homework book: p26 E3.2 Qu 1-12  
A\*-G homework book: p19 E3.2 Qu 1-12

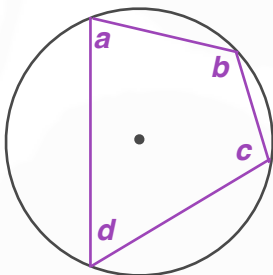
**Summary**

1. Angle in a semi-circle is  $90^\circ$ .
2. Angle at **centre** is twice angle at the **circumference** from the same chord
3. Angles at **circumference** from the same chord are equal

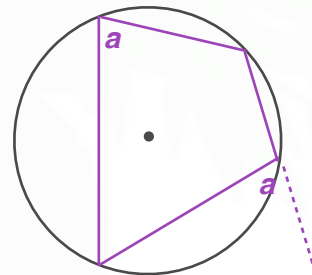


**N.B.** For 2 and 3 the angles must come from the **same chord**.

4. The opposite angles of a cyclic quadrilateral add up to 180 degrees.
5. The exterior angle of a cyclic quadrilateral equals the opposite interior angle.



$$a + c = 180^\circ$$
$$b + d = 180^\circ$$



**Homework book answers (only available during a lockdown)**