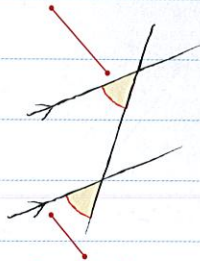


Angle properties

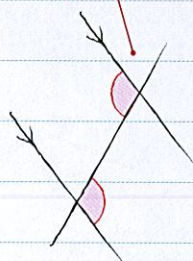
You need to remember all of these angle properties and their correct names.

CORRESPONDING ANGLES are equal.



Parallel lines are marked with arrows.

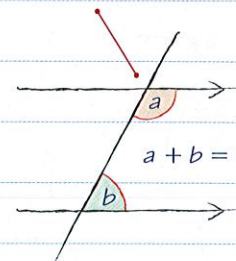
ALTERNATE ANGLES are equal.



OPPOSITE ANGLES are equal.

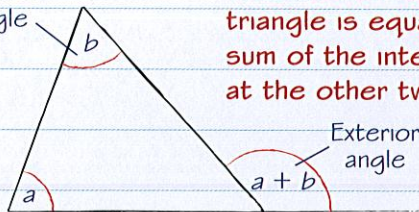


SUPPLEMENTARY ANGLES add up to 180° .

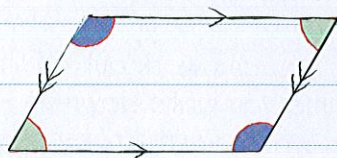


These are useful angle facts for triangles and parallelograms:

Interior angle



The exterior angle of a triangle is equal to the sum of the interior angles at the other two vertices.



The opposite angles of a parallelogram are equal.

You need to know the proofs of the angle properties of triangles and quadrilaterals.

Golden rule

When answering angle problems, you need to give a reason for each step of your working.

Geometric proof checklist

To prove a geometric fact you need to:

- write down each step of your working clearly
- give a reason for each step of your working
- use the correct words for your reasons.

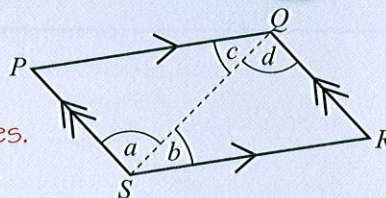
Worked example

grade **D**

$PQRS$ is a parallelogram.

- (a) Give a reason why angle a is the same size as angle d .

a and d are alternate angles. Alternate angles are equal.



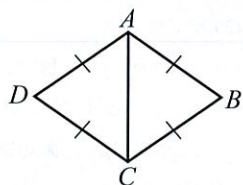
- (b) Prove that the opposite angles in a parallelogram are equal.

$a = d$ (alternate angles are equal)
 $b = c$ (alternate angles are equal)
 $a + b = d + c$
 So the opposite angles are equal.

Now try this

edexcel

$ABCD$ is a rhombus. Prove that AC bisects angle DCB . (3 marks)



grade **C**

You need to show that angle DAC is the same as angle BAC . You could start by writing angle BAC as x . If you say that any other angle is also equal to x make sure that you give a reason.