



# Year 7 Knowledge Organiser

## ANGLE PROPERTIES



### Key Concepts

Exterior angle →

Interior angle →

$$Exterior = \frac{360}{no. of sides}$$

Angles at a point add to  $360^\circ$

Angles on a line add to  $180^\circ$

Sum of interior =  $180^\circ \times 4 = 720^\circ$

### Key Words

**Angle:** This is formed by two lines joined by a common endpoint.

**Quadrilateral:** 4 sided shape.

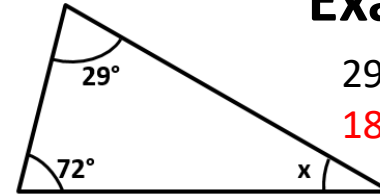
**Polygon:** Many sided shape.

**Regular polygon:** All sides and angles are equal.

**Interior angle:** The angle inside a polygon.

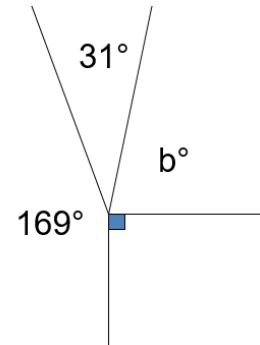
**Exterior angle:** The angle formed when a side length of a polygon is continued.

### Examples



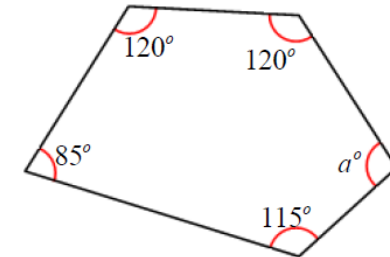
$$29^\circ + 72^\circ = 101^\circ$$

$$180^\circ - 101^\circ = 79^\circ$$



$$169^\circ + 31^\circ + 90^\circ = 290^\circ$$

$$360^\circ - 290^\circ = 70^\circ$$



$$120^\circ + 120^\circ + 85^\circ + 115^\circ = 440^\circ$$

$$540^\circ - 440^\circ = 100^\circ$$

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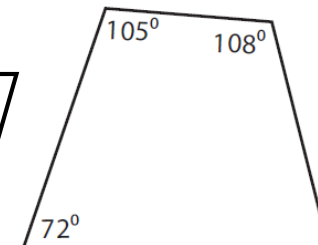
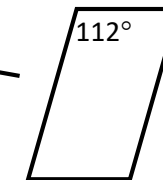
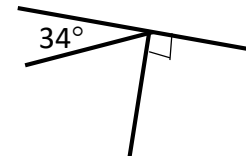
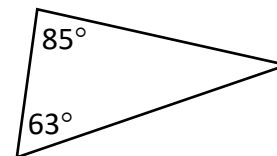
477-487, 560-564,  
812-814

### Tip

Remember isosceles triangles have two equal angles and equilateral triangles have three equal angles.

### Questions

1) Find the missing angles:



ANSWERS: 1)  $32^\circ$  2)  $56^\circ$  3)  $68^\circ, 112^\circ, 68^\circ$  4)  $75^\circ$

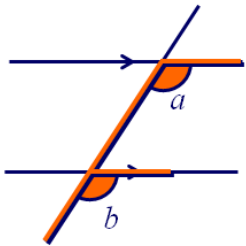


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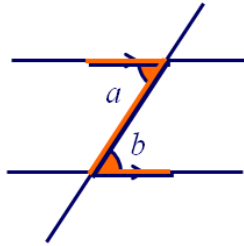
## PARALLEL LINES AND ANGLES



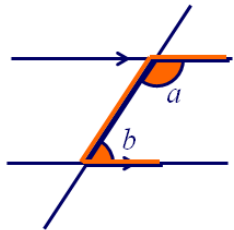
### Key Concepts



**Corresponding** angles are equal.



**Alternate** angles are equal.



**Co-interior** angles add to  $180^\circ$ .

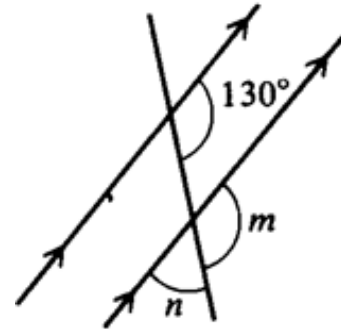
### Key Words

**Intersect:** Two lines which cross.

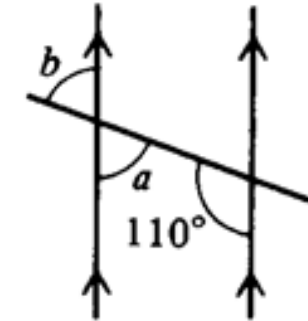
**Parallel:** Two lines which never intersect. Marked by an arrow on each line.

**Transversal:** A line which intersects two parallel lines.

### Examples



$m = 130^\circ$  as corresponding angles are equal.  
 $n = 50^\circ$  as angles on a line add to  $180^\circ$



$a = 70^\circ$  as co-interior angles add to  $180^\circ$   
 $b = 70^\circ$  as vertically opposite angles are equal

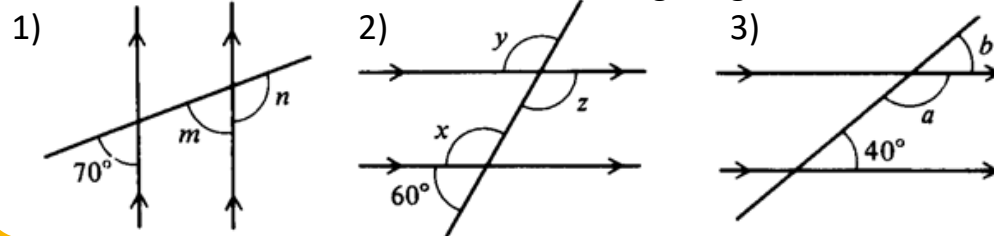


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480-491

### Tip

These angle properties can be used alongside all the other angle properties that you have learnt.

### Questions – Find the labelled angles, give reasons.



ANSWERS: 1)  $m = 70^\circ, n = 110^\circ$  2)  $x = 120^\circ, y = 120^\circ, z = 120^\circ$  3)  $a = 140^\circ, b = 40^\circ$