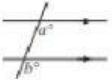
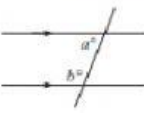
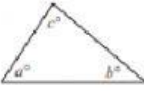


ANGLE PROPERTIES

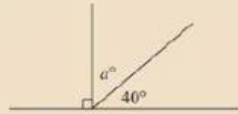
Title	Property	Figure
Angles centred at a point	The sum of the sizes of the angles at a point is 360° .	 $a + b + c = 360$
Adjacent angles on a straight line	The sum of the sizes of the angles on a line is 180° . The angles are supplementary.	 $a + b = 180$
Adjacent angles in a right angle	The sum of the sizes of the angles in a right angle is 90° . The angles are complementary.	 $a + b = 90$
Vertically opposite angles	Vertically opposite angles are equal in size.	 $a = b$
Corresponding angles	When two <i>parallel</i> lines are cut by a third line, then angles in corresponding positions are equal in size.	 $a = b$
Alternate angles	When two <i>parallel</i> lines are cut by a third line, then angles in alternate positions are equal in size.	 $a = b$

Title	Property	Figure
Co-interior angles (also called allied angles)	When two <i>parallel</i> lines are cut by a third line, then co-interior angles are supplementary.	 $a + b = 180$
Angles of a triangle	The sum of the interior angles of a triangle is 180° .	 $a + b + c = 180$
Exterior angle of a triangle	The size of the exterior angle of a triangle is equal to the sum of the interior opposite angles.	 $c = a + b$
Angles of a quadrilateral	The sum of the interior angles of a quadrilateral is 360° .	 $a + b + c + d = 360$

Example

Find, giving brief reasons, the value of the unknown in:

a



$$\mathbf{a} \quad 90 + a + 40 = 180$$

$$\therefore a + 130 = 180$$

$$\therefore a = 50$$

b



$$\mathbf{b} \quad 2x - 100 = x$$

$$\therefore 2x - 100 - x = x - x \quad \{\text{subtracting } x \text{ from both sides}\}$$

$$\therefore x - 100 = 0 \quad \{\text{simplifying}\}$$

$$\therefore x = 100$$

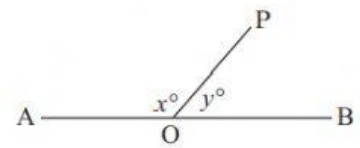
- 1** Use the figure illustrated to answer the following questions:

AB is a fixed line and OP can rotate about O between OA and OB.

a If $x = 136$, find y . **b** If $y = 58$, find x .

c What is x if y is 39? **d** If x is 0, what is y ?

e If $x = 81$, find y . **f** If $x = y$, what is the value of each?



a.

b.

c.

d.

e.

f.