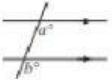
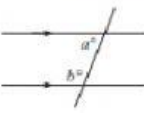
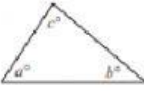


ANGLE PROPERTIES

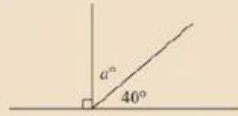
Title	Property	Figure
Angles centred at a point	The sum of the sizes of the angles at a point is 360° .	 $a + b + c = 360$
Adjacent angles on a straight line	The sum of the sizes of the angles on a line is 180° . The angles are supplementary.	 $a + b = 180$
Adjacent angles in a right angle	The sum of 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



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

{angles on a line}

$$\therefore a + 130 = 180$$

$$\therefore a = 50$$

b



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

{equal corresponding angles}

$$\therefore 2x - 100 - x = x - x$$

{subtracting x from both sides}

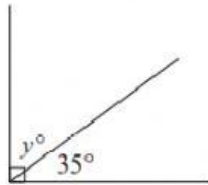
$$\therefore x - 100 = 0$$

{simplifying}

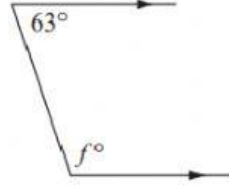
$$\therefore x = 100$$

Find the values of the unknowns, giving brief reasons. You should **not** need to set up an equation.

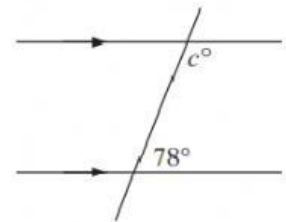
a



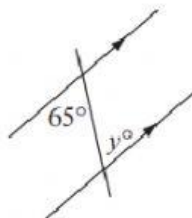
b



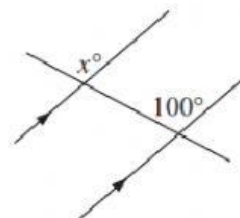
c



d



e



f

