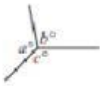
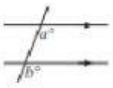
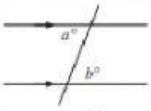
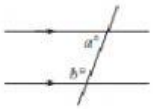
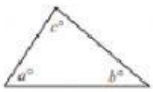
# ANGLE PROPERTIES

| 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 *parallel* lines are cut by a third line, then angles in corresponding positions are equal in size. |  $a=b$ |
| Alternate angles | When two *parallel* lines are cut by a third line, then angles in alternate positions are equal in size. |  $a=b$ |

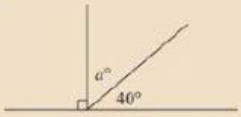
| Title | Property | Figure |
|---|---|---|
| Co-interior angles (also called allied angles) | When two *parallel* lines are cut by a third line, then co-interior angles are supplementary. |  $a+b=180$ |
| Angles of a triangle | The sum of the interior angles of a triangle is 180°. |  $a+b+c=180$ |
| 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°. |  $a+b+c+d=360$ |

LIVEWORKSHEETS

**Example**

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

**a**




**b**




**a** $90 + a + 40 = 180$ {angles on a line}

$\therefore \quad a + 130 = 180$

$\therefore \quad a = 50$

**b** $2x - 100 = x$ {equal corresponding angles}

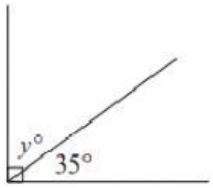
$\therefore \quad 2x - 100 - x = x - x$ {subtracting $x$ from both sides}

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

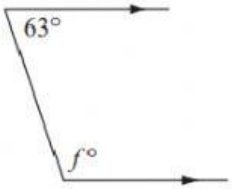
$\therefore \quad x = 100$

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

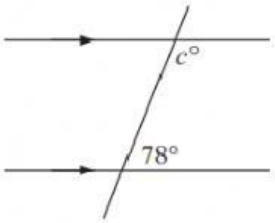
**a**



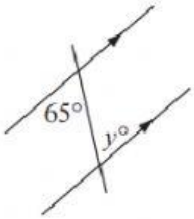

**b**



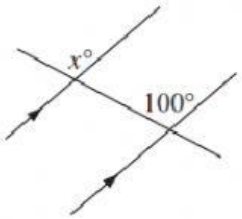

**c**



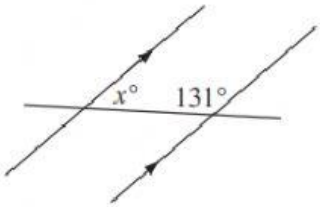

**d**




**e**




**f**




LIVEWORKSHEETS