New

Exercise 14(A)

23) In this figure,
$5x + x + 80° + 123° + 85° = 360°$
(Angles at a point)
$\therefore 6x + 80° + 123° + 85° = 360°$
$\therefore 6x + 288° = 360°$
$\therefore 6x = 360° - 288° = 72°$
$\therefore x = \frac{72°}{6} = 12°$

Now, $\angle AOB = 5x = 5 \times 12° = 60°$
and $\angle BOC = x = 12°$

24) In this figure,
$3\frac{1}{2}y° + 2y° + 2y° + 2\frac{1}{2}y° = 360°$
(Angles at a point)
$\therefore \frac{7}{2}y° + 2y° + 2y° + \frac{5}{2}y° = 360°$
$\therefore \frac{7}{2}y° + \frac{5}{2}y° + 4y° = 360°$
$\therefore \frac{12}{2}y° + 4y° = 360°$
$\therefore 6y° + 4y° = 360°$
$\therefore 10y° = 360°$
$\therefore y = \frac{360}{10} = 36°$

$\therefore \angle AOB = 3\frac{1}{2}y^\circ = \frac{7}{2}y^\circ = \frac{7}{2} \times 36^\circ$

$= 126^\circ$

$\angle BOC = 2y^\circ = 2 \times 36 = 72^\circ$

$\angle COD = 2y^\circ = 72^\circ$

$\angle DOA = 2\frac{1}{2}y^\circ = \frac{5}{2}y^\circ$

$= \frac{5}{2} \times 36^\circ = 90^\circ$

25) AB, CD, and EF are intresecting each other at O.

$\angle DOF = x^\circ$, $\angle AOC = y^\circ$

and $\angle BOF = z^\circ$

But $\angle DOB = \angle AOC = y^\circ$

(Vertically opposite angles)

Similarly, $\angle COE = \angle DOF = x^\circ$

and $\angle AOF = \angle BOE = z^\circ$

$\therefore$ CD is straight line

$\therefore \angle COE + \angle BOF + \angle DOB = 180^\circ$

$x^\circ + z^\circ + y^\circ = 180^\circ$

$x^\circ + y^\circ + z^\circ = 180^\circ$

25) i) If $y = 45^\circ$ and $z = 90^\circ$ then

$= x^\circ + 45^\circ + 90^\circ = 180^\circ$

$= x^\circ + 135^\circ = 180^\circ$

$\therefore x^\circ = 180^\circ - 135^\circ = 45^\circ$

ii) If $x = 3a$, $y = 5x$, $z = 6x$

then $x + y + z = 180^\circ$

$= x + 5x + 6x = 180^\circ = 12x = 180^\circ$

$= x = \frac{180^\circ}{12} = 150^\circ$

But $x = 3a$

$\therefore 3a = 15^\circ = a = \frac{15^\circ}{3} = 5^\circ$

Hence $a = 5^\circ$