Revision

Lines And Angles

23. $5x + x + 80^\circ + 123^\circ + 85^\circ = 360^\circ$ (Angles at a point)

$\Rightarrow 6x + 80^\circ + 123^\circ + 85^\circ = 360^\circ$

$\Rightarrow 6x + 288^\circ = 360^\circ$

$\Rightarrow 6x = 360^\circ - 288^\circ = 72^\circ$

$\Rightarrow x = \frac{72^\circ}{6} = 12^\circ$

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

24. $3\frac{1}{2}y^\circ + 2y^\circ + 2y^\circ + 2\frac{1}{2}y^\circ = 360^\circ$ (Angles at a point)

$\Rightarrow \frac{7}{2}y^\circ + 2y^\circ + 2y^\circ + \frac{5}{2}y^\circ = 360^\circ$

$\Rightarrow \frac{7}{2}y^\circ + \frac{5}{2}y^\circ + 4y^\circ = 360^\circ$

$\Rightarrow \frac{12}{2}y^\circ + 4y^\circ = 360^\circ$

$\Rightarrow 6y^\circ + 4y^\circ = 360^\circ$

$\Rightarrow 10y^\circ = 360^\circ$

$\Rightarrow y = \frac{360^\circ}{10} = 36^\circ$

$\angle AOB = 3\frac{1}{2}y^\circ = \frac{7}{2}y^\circ = \frac{7}{2} \times 36^\circ = 126^\circ$

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

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

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

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

25. $\angle COE + \angle BOE + \angle DOE = 180^\circ$

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

$\Rightarrow$ If $y = 45^\circ$ and $z = 90^\circ$, Hence

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

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

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

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

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

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

$\Rightarrow 12x = 180^\circ$

$\Rightarrow x = \frac{180^\circ}{12} = 15^\circ$

But $x = 3a$

$3a = 15^\circ$

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

Hence $a = 5^\circ$