



### Exercise 9B

Question 5:

In a parallelogram, the opposite angles are equal.

So, in the parallelogram ABCD,

$$\angle A = \angle C$$

and

$$\angle B = \angle D$$

Since

$$\angle A = (2x + 25)^{\circ}$$

$\therefore$

$$\angle C = (2x + 25)^{\circ}$$

and

$$\angle B = (3x - 5)^{\circ}$$

$\therefore$

$$\angle D = (3x - 5)^{\circ}$$

In a parallelogram, the sum of all the four angles is  $360^{\circ}$

$$\therefore \angle A + \angle B + \angle C + \angle D = 360^{\circ}$$

$$\Rightarrow (2x + 25) + (3x - 5) + (2x + 25) + (3x - 5) = 360^{\circ}$$

$$\Rightarrow 10x + 40 = 360^{\circ}$$

$$\Rightarrow 10x = 360^{\circ} - 40^{\circ} = 320^{\circ}$$

$$\Rightarrow x = \frac{320}{10} = 32^{\circ}$$

$$\therefore \angle A = (2x + 25) = (2 \times 32 + 25) = 89^{\circ}$$

$$\angle B = (3x - 5) = (3 \times 32 - 5) = 91^{\circ}$$

$$\angle C = (2x + 25) = (2 \times 32 + 25) = 89^{\circ}$$

$$\angle D = (3x - 5) = (3 \times 32 - 5) = 91^{\circ}$$

$$\therefore \angle A = \angle C = 89^{\circ} \text{ and } \angle B = \angle D = 91^{\circ}$$

Question 6:

Lets ABCD be a parallelogram.

Suppose,  $\angle A = x^\circ$

Then,  $\angle B$ , which is adjacent angle of A is  $\frac{4}{5}x^\circ$ .

In a parallelogram, the opposite angles are equal

$$\Rightarrow \angle A = \angle C = x^\circ \text{ and } \angle B = \angle D = \frac{4}{5}x^\circ$$

The sum of all the four angles of a parallelogram is  $360^\circ$ .

$$\Rightarrow \angle A + \angle B + \angle C + \angle D = 360^\circ$$

$$\Rightarrow x + \frac{4}{5}x + x + \frac{4}{5}x = 360^\circ$$

$$\Rightarrow 2x + \frac{8}{5}x = 360^\circ$$

$$\Rightarrow \frac{18}{5}x = 360^\circ$$

$$\Rightarrow x = \frac{360 \times 5}{18} = 100^\circ$$

$$\therefore \angle A = x = 100^\circ$$

$$\angle B = \frac{4}{5}x = \frac{4}{5} \times 100 = 80^\circ$$

$$\angle C = x = 100^\circ$$

$$\angle D = \frac{4}{5}x = \frac{4}{5} \times 100 = 80^\circ$$

$$\therefore \angle A = \angle C = 100^\circ \text{ and } \angle B = \angle D = 80^\circ.$$

\*\*\*\*\* END \*\*\*\*\*