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 $\angle A = (2x + 25)^0$

$\therefore$ $\angle C = (2x + 25)^0$

and $\angle B = (3x - 5)^0$

$\therefore$ $\angle D = (3x - 5)^0$

In a parallelogram, the sum of all the four angles is 360^0

$\therefore \quad \angle A + \angle B + \angle C + \angle D = 360^0$

$\Rightarrow (2x + 25) + (3x - 5) + (2x + 25) + (3x - 5) = 360^0$

$\Rightarrow \quad 10x + 40 = 360^0$

$\Rightarrow \quad 10x = 360^0 - 40^0 = 320^0$

$\Rightarrow \quad x = \frac{320}{10} = 32^0$

$\therefore \angle A = (2x + 25) = (2 \times 32 + 25) = 89^0$

$\angle B = (3x - 5) = (3 \times 32 - 5) = 91^0$

$\angle C = (2x + 25) = (2 \times 32 + 25) = 89^0$

$\angle D = (3x - 5) = (3 \times 32 - 5) = 91^0$

$\therefore \angle A = \angle C = 89^0$ and $\angle B = \angle D = 91^0$

Question 6:

Lets ABCD be a parallelogram.

Suppose, $\angle A = x^0$

Then, $\angle B$, which is adjacent angle of A is $\frac{4}{5}x^0$.

In a parallelogram, the opposite angles are equal

$\Rightarrow \quad \angle A = \angle C = x^0$ and $\angle B = \angle D = \frac{4}{5}x^0$

The sum of all the four angles of a parallelogram is 360^0.

$$\Rightarrow \quad \angle A + \angle B + \angle C + \angle D = 360^0$$

$$\Rightarrow \quad x + \frac{4}{5}x + x + \frac{4}{5}x = 360^0$$

$$\Rightarrow \quad 2x + \frac{8}{5}x = 360^0$$

$$\Rightarrow \quad \frac{18}{5}x = 360^0$$

$$\Rightarrow \quad x = \frac{360 \times 5}{18} = 100^0$$

$$\therefore \quad \angle A = x = 100^0$$

$$\angle B = \frac{4}{5}x = \frac{4}{5} \times 100 = 80^0$$

$$\angle C = x = 100^0$$

$$\angle D = \frac{4}{5}x = \frac{4}{5} \times 100 = 80^0$$

$\therefore \angle A = \angle C = 100^0$ and $\angle B = \angle D = 80^0$.

********** END **********