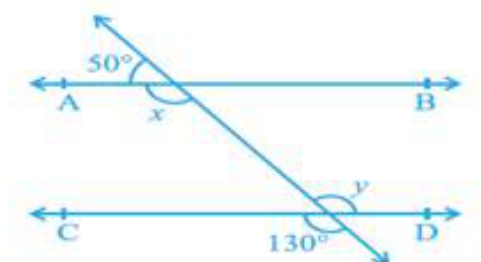




NCERT solutions for class 9 Maths Lines and Angles Ex 6.2

Q1. In the given figure, find the values of x and y and then show that $AB \parallel CD$.



Ans. We need to find the value of x and y in the figure given below and then prove that $AB \parallel CD$.

From the figure, we can conclude that

$y = 130^\circ$ (Vertically opposite angles), and

x and 50° form a pair of linear pair.

We know that the sum of linear pair of angles is 180° .

$$x + 50^\circ = 180^\circ$$

$$x = 130^\circ.$$

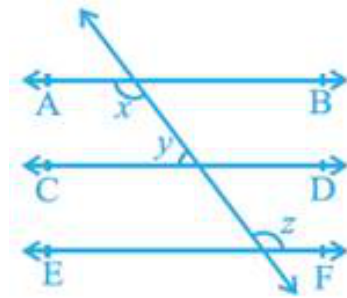
$$x = y = 130^\circ.$$

From the figure, we can conclude that x and y form a pair of alternate interior angles corresponding to the lines AB and CD .

Therefore, we can conclude that

$$x = 130^\circ, y = 130^\circ \text{ and } AB \parallel CD.$$

Q2. In the given figure, if $AB \parallel CD$, $CD \parallel EF$ and $y : z = 3 : 7$, find x .



Ans. We are given that $AB \parallel CD$, $CD \parallel EF$ and $y : z = 3 : 7$.

We need to find the value of x in the figure given below.

We know that lines parallel to the same line are also parallel to each other.

We can conclude that $AB \parallel CD \parallel EF$.

Let $y = 3a$ and $z = 7a$.

We know that angles on same side of a transversal are supplementary.

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

$$x = z \text{ (Alternate interior angles)}$$

$$z + y = 180^\circ, \text{ or}$$

$$7a + 3a = 180^\circ$$

$$\Rightarrow 10a = 180^\circ$$

$$a = 18^\circ$$

$$z = 7a = 126^\circ$$

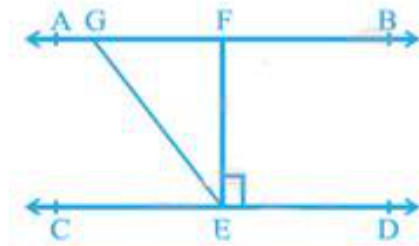
$$y = 3a = 54^\circ$$

$$\text{Now } x + 54^\circ = 180^\circ$$

$$x = 126^\circ$$

Therefore, we can conclude that $x = 126^\circ$.

Q3. In the given figure, If $AB \parallel CD$, $EF \perp CD$ and $\angle GED = 126^\circ$, find $\angle AGE$, $\angle GEF$ and $\angle FGE$.



Ans. We are given that $AB \parallel CD$, $EF \perp CD$ and $\angle GED = 126^\circ$.

We need to find the value of $\angle AGE$, $\angle GEF$ and $\angle FGE$ in the figure given below.

$$\angle GED = 126^\circ$$

$$\angle GED = \angle FED + \angle GEF.$$

$$\text{But, } \angle FED = 90^\circ.$$

$$126^\circ = 90^\circ + \angle GEF$$

$$\Rightarrow \angle GEF = 36^\circ.$$

$$\therefore \angle AGE = \angle GED \text{ (Alternate angles)}$$

$$\therefore \angle AGE = 126^\circ.$$

From the given figure, we can conclude that $\angle FED$ and $\angle FEC$ form a linear pair.

We know that sum of the angles of a linear pair

is 180° .

$$\angle FED + \angle FEC = 180^\circ$$

$$\Rightarrow 90^\circ + \angle FEC = 180^\circ$$

$$\Rightarrow \angle FEC = 90^\circ$$

$$\angle FEC = \angle GEF + \angle GEC$$

$$\therefore 90^\circ = 36^\circ + \angle GEC$$

$$\Rightarrow \angle GEC = 54^\circ.$$

$$\angle GEC = \angle FGE = 54^\circ \text{ (Alternate interior angles)}$$

Therefore, we can conclude that

$$\angle AGE = 126^\circ, \angle GEF = 36^\circ \text{ and } \angle FGE = 54^\circ .$$

***** END *****