



SpeedLabs

MATHS

CBSE 7th

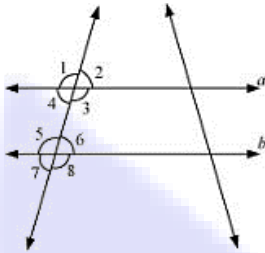
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Lines and Angles

Exercise-5.2

Q.1 State the property that is used in each of the following statements?

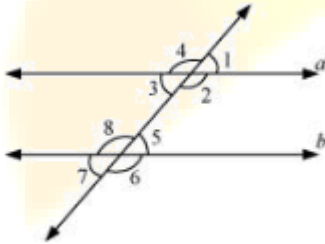
- (i) If $a \parallel b$, then $\angle 1 = \angle 5$
- (ii) If $\angle 4 = \angle 6$, then $a \parallel b$
- (iii) If $\angle 4 + \angle 5 = 180^\circ$, then $a \parallel b$



- Sol:**
- (i) Corresponding angles property
 - (ii) Alternate interior angles property
 - (iii) Interior angles on the same side of transversal are supplementary.

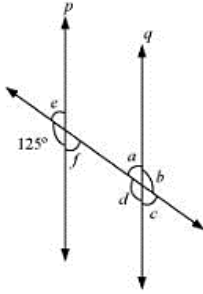
Q.2 In the adjoining figure, identify

- (i) The pairs of corresponding angles
- (ii) The pairs of alternate interior angles
- (iii) The pairs of interior angles on the same side of the transversal
- (iv) The vertically opposite angles



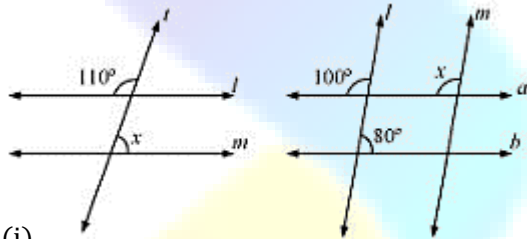
- Sol:**
- (i) $\angle 1$ and $\angle 5$, $\angle 2$ and $\angle 6$, $\angle 3$ and $\angle 7$, $\angle 4$ and $\angle 8$
 - (ii) $\angle 2$ and $\angle 8$, $\angle 3$ and $\angle 5$
 - (iii) $\angle 2$ and $\angle 5$, $\angle 3$ and $\angle 8$
 - (iv) $\angle 1$ and $\angle 3$, $\angle 2$ and $\angle 4$, $\angle 5$ and $\angle 7$, $\angle 6$ and $\angle 8$

Q.3 In the adjoining figure, $p \parallel q$. Find the unknown angles.

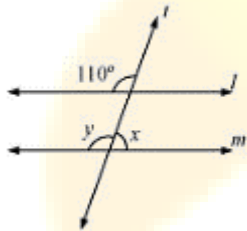


Sol: $\angle d = 125^\circ$ (Corresponding angles)
 $\angle e = 180^\circ - 125^\circ = 55^\circ$ (Linear pair)
 $\angle f = \angle e = 55^\circ$ (Vertically opposite angles)
 $\angle c = \angle f = 55^\circ$ (Corresponding angles)
 $\angle a = \angle e = 55^\circ$ (Corresponding angles)
 $\angle b = \angle d = 125^\circ$ (Vertically opposite angles)

Q.4 Find the value of x in each of the following figures if $l \parallel m$.

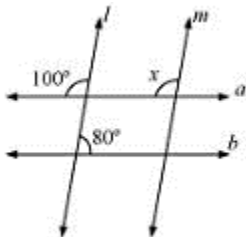


Sol: (i)



$\angle y = 110^\circ$ (Corresponding angles)
 $\angle x + \angle y = 180^\circ$ (Linear pair)
 $\angle y = 180^\circ - 110^\circ = 70^\circ$

(ii)



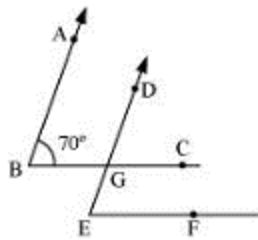
$\angle x = 100^\circ$ (Corresponding angles)

Q.5 In the given figure, the arms of two angles are parallel.

If $\angle ABC = 70^\circ$, then find

(i) $\angle DGC$

(ii) $\angle DEF$



Sol: (i) Consider that $AB \parallel DG$ and a transversal line BC is intersecting them.

$\angle DGC = \angle ABC$ (Corresponding angles)

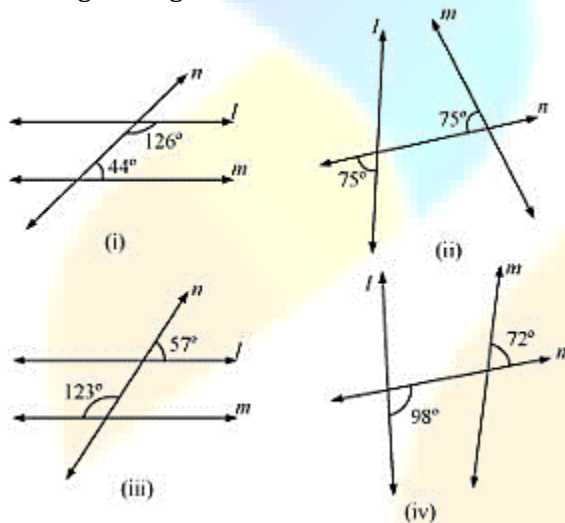
$\angle DGC = 70^\circ$

(ii) Consider that $BC \parallel EF$ and a transversal line DE is intersecting them.

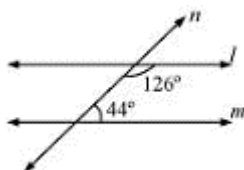
$\angle DEF = \angle DGC$ (Corresponding angles)

$\angle DEF = 70^\circ$

Q.6 In the given figures below, decide whether l is parallel to m .



Sol: (i)

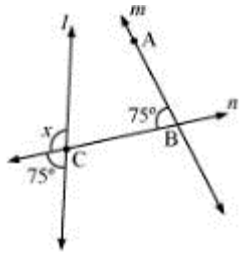


Consider two lines, l and m , and a transversal line n which is intersecting them.

Sum of the interior angles on the same side of transversal $= 126^\circ + 44^\circ = 170^\circ$

As the sum of interior angles on the same side of transversal is not 180° , therefore, l is not parallel to m .

(ii)

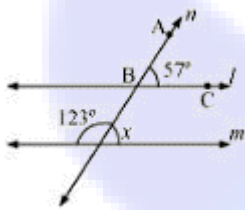


$$x + 75^\circ = 180^\circ \text{ (Linear pair on line l)}$$

$$x = 180^\circ - 75^\circ = 105^\circ$$

For l and m to be parallel to each other, corresponding angles ($\angle ABC$ and $\angle x$) should be equal. However, here their measures are 75° and 105° respectively. Hence, these lines are not parallel to each other.

(iii)

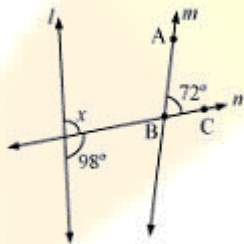


$$\angle x + 123^\circ = 180^\circ \text{ (Linear pair)}$$

$$\angle x = 180^\circ - 123^\circ = 57^\circ$$

For l and m to be parallel to each other, corresponding angles ($\angle ABC$ and $\angle x$) should be equal. Here, their measures are 57° and 57° respectively. Hence, these lines are parallel to each other.

(iv)



$$98 + \angle x = 180^\circ \text{ (Linear pair)}$$

$$\angle x = 82^\circ$$

For l and m to be parallel to each other, corresponding angles ($\angle ABC$ and $\angle x$) should be equal. However, here their measures are 72° and 82° respectively. Hence, these lines are not parallel to each other.