RD SHARMA

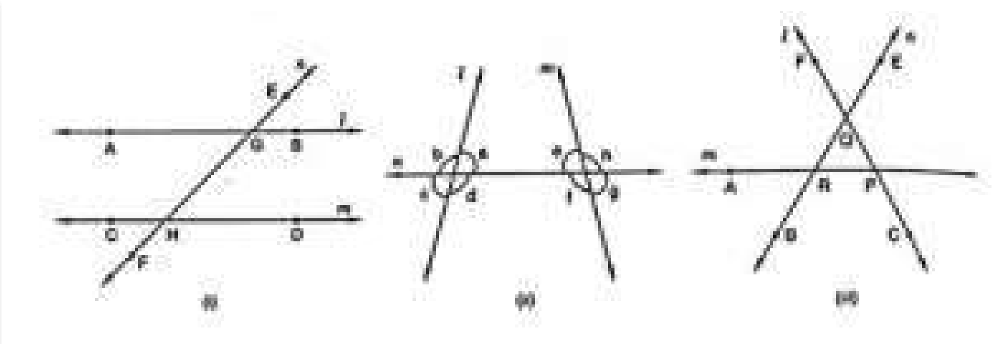
Solutions

Class 7 Maths

Chapter 14

Ex 14.2

Q1. In Figure, line n is a transversal to line l and m. Identify the following:



(i) Alternate and corresponding angles in Fig. 58 (i)

(ii) Angles alternate to $\angle d$ and $\angle g$ and angles corresponding to $\angle RQF$ and angle alternate to $\angle PQE$ in Fig. 58 (ii)

(iii) Angle alternate to $\angle PQR$, angle corresponding to $\angle RQF$ and angle alternate to $\angle PQE$ in Fig. 58 (iii)

(iv) Pairs of interior and exterior angles on the same side of the transversal in Fig. 58 (iii)

Sol:

(i) Figure (i)

Corresponding angles :

$\angle EGB$ and $\angle GHD$

$\angle HGB$ and $\angle FHD$

$\angle EGA$ and $\angle GHC$

$\angle AGH$ and $\angle CHF$

The alternate angles are :

$\angle EGB$ and $\angle CHF$

$\angle HGB$ and $\angle CHG$

$\angle EGA$ and $\angle FHD$

$\angle AGH$ and $\angle GHD$

(ii) Figure (ii)

The alternate angle to $\angle d$ is $\angle e$.

The alternate angle to $\angle g$ is $\angle b$.

The corresponding angle to $\angle f$ is $\angle c$.

The corresponding angle to $\angle h$ is $\angle a$.

(iii) Figure (iii)

Angle alternate to $\angle PQR$ is $\angle QRA$.

Angle corresponding to $\angle RQF$ is $\angle ARB$.

Angle alternate to $\angle POE$ is $\angle ARB$.

(iv) Figure (ii)

Pair of interior angles are

$\angle a$ is $\angle e$.

$\angle d$ is $\angle f$.

Pair of exterior angles are

$\angle b$ is $\angle h$.

$\angle c$ is $\angle g$.

Q2. In Figure, AB and CD are parallel lines intersected by a transversal PQ at L and M respectively, If $\angle CMQ = 60^\circ$, find all other angles in the figure.

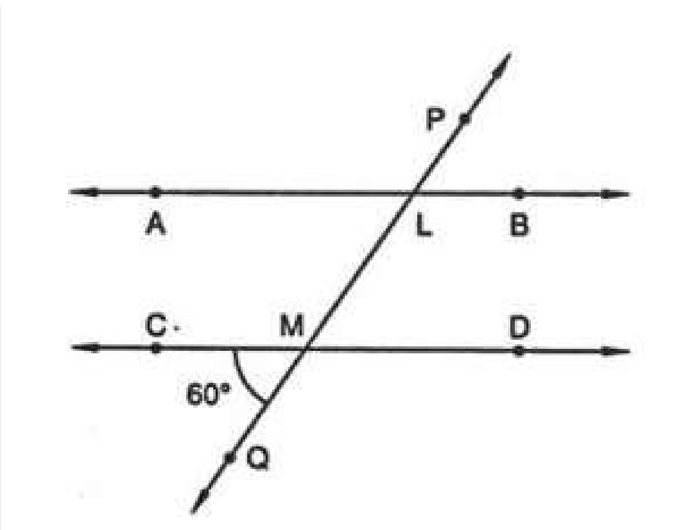


Fig. 59

Sol:

Corresponding angles :

$\angle ALM = \angle CMQ = 60^\circ$

Vertically opposite angles :

$\angle LMD = \angle CMQ = 60^\circ$

Vertically opposite angles :

$\angle ALM = \angle PLB = 60^\circ$

Here,

$\angle CMQ + \angle QMD = 180^\circ$ are the linear pair

=> $\angle QMD = 180^\circ - 60^\circ$

$= 120^\circ$

Corresponding angles :

$\angle QMD = \angle MLB = 120^\circ$

Vertically opposite angles

$\angle QMD = \angle CML = 120^\circ$

Vertically opposite angles

$\angle MLB = \angle ALP = 120^\circ$

Q3. In Fig. 60, AB and CD are parallel lines intersected by a transversal by a transversal PQ at L and M respectively. If $\angle LMD = 35^\circ$ find $\angle ALM$ and $\angle PLA$.

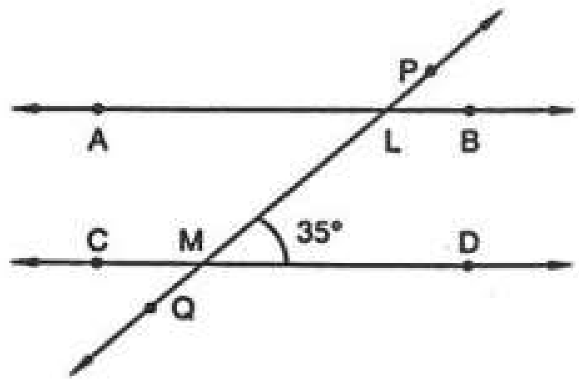


Fig. 60

Sol:

Given that,

$\angle LMD = 35°$

$\angle LMD$ and $\angle LMC$ is a linear pair

$\angle LMD + \angle LMC = 180°$

=> $\angle LMC = 180° - 35°$

$= 145°$

So, $\angle LMC = \angle PLA = 145°$

And, $\angle LMC = \angle MLB = 145°$

$\angle MLB$ and $\angle ALM$ is a linear pair

$\angle MLB + \angle ALM = 180°$

=> $\angle ALM = 180° - 145°$

=> $\angle ALM = 35°$

Therefore, $\angle ALM = 35°$, $\angle PLA = 145°$.

Q4. The line n is transversal to line l and m in Fig. 61. Identify the angle alternate to $\angle 13$, angle corresponding to $\angle 15$, and angle alternate to $\angle 15$.

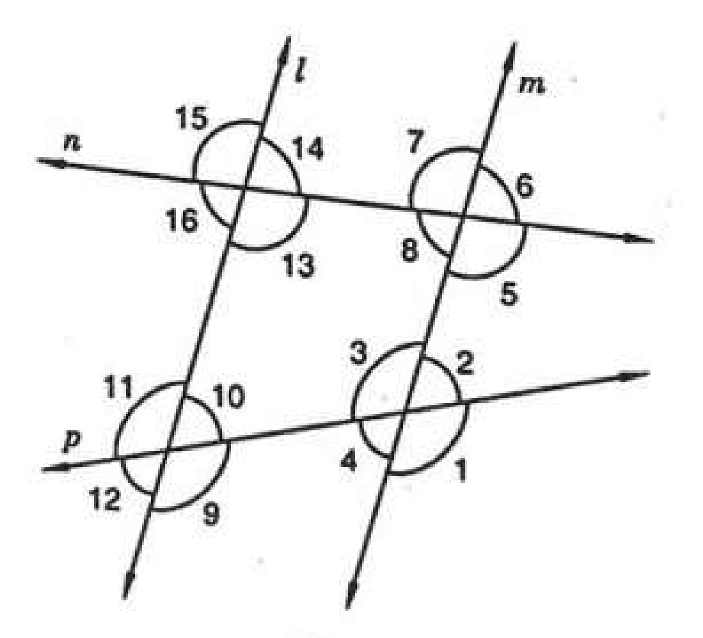


Fig. 61

Sol:

Given that, l || m

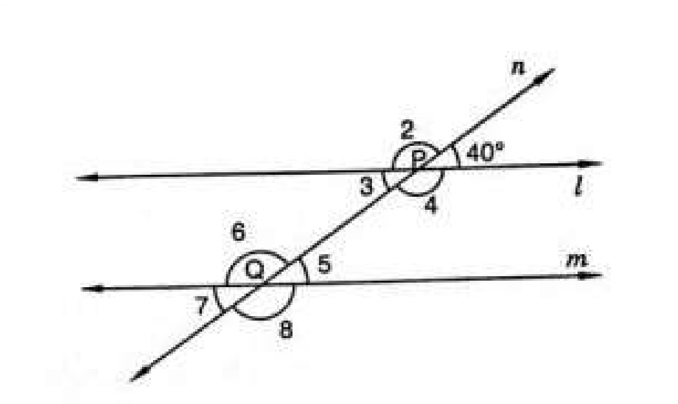
So,

The angle alternate to ∠13 is ∠7

The angle corresponding to ∠15 is ∠7

The angle alternate to ∠15 is ∠5

Q5. In Fig. 62, line l || m and n is transversal. If ∠1 = 40°, find all the angles and check that all corresponding angles and alternate angles are equal.



Sol:

Given that,

$\angle 1 = 40°$

∠1 and ∠2 is a linear pair

=> $\angle 1 + \angle 2 = 180°$

=> $\angle 2 = 180° - 40°$

=> $\angle 2 = 140°$

∠2 and ∠6 is a corresponding angle pair

So, $\angle 6 = 140^\circ$

$\angle 6$ and $\angle 5$ is a linear pair

=> $\angle 6 + \angle 5 = 180^\circ$

=> $\angle 5 = 180^\circ - 140^\circ$

=> $\angle 5 = 40^\circ$

$\angle 3$ and $\angle 5$ are alternative interior angles

So, $\angle 5 = \angle 3 = 40^\circ$

$\angle 3$ and $\angle 4$ is a linear pair

=> $\angle 3 + \angle 4 = 180^\circ$

=> $\angle 4 = 180^\circ - 40^\circ$

=> $\angle 4 = 140^\circ$

$\angle 4$ and $\angle 6$ are a pair interior angles

So, $\angle 4 = \angle 6 = 140^\circ$

$\angle 3$ and $\angle 7$ are pair of corresponding angles

So, $\angle 3 = \angle 7 = 40^\circ$

Therefore, $\angle 7 = 40^\circ$

$\angle 4$ and $\angle 8$ are a pair corresponding angles

So, $\angle 4 = \angle 8 = 140^\circ$

Therefore, $\angle 8 = 140^\circ$

So, $\angle 1 = 40^\circ$, $\angle 2 = 140^\circ$, $\angle 3 = 40^\circ$, $\angle 4 = 140^\circ$, $\angle 5 = 40^\circ$, $\angle 6 = 140^\circ$, $\angle 7 = 40^\circ$, $\angle 8 = 140^\circ$

Q6. In Fig. 63, line l || m and a transversal n cuts them P and Q respectively. If $\angle 1 = 75^\circ$, find all other angles.

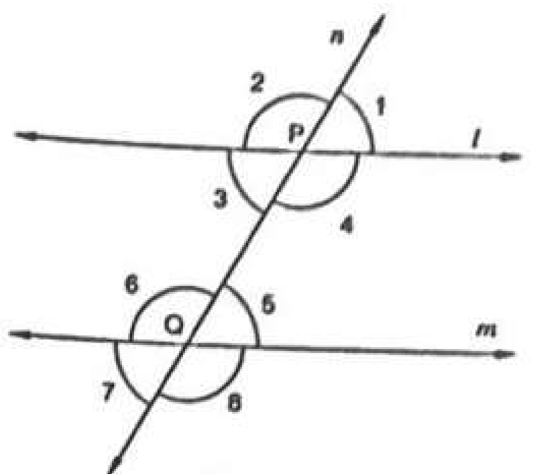


Fig. 63

Sol:

Given that, l || m and $\angle 1 = 75^\circ$

We know that,

$\angle 1 + \angle 2 = 180^\circ$ — (linear pair)

=> $\angle 2 = 180^\circ - 75^\circ$

=> $\angle 2 = 105^\circ$

here, $\angle 1 = \angle 5 = 75^\circ$ are corresponding angles

$\angle 5 = \angle 7 = 75^\circ$ are vertically opposite angles.

$\angle 2 = \angle 6 = 105^\circ$ are corresponding angles

$\angle 6 = \angle 8 = 105^\circ$ are vertically opposite angles

$\angle 2 = \angle 4 = 105^\circ$ are vertically opposite angles

So, $\angle 1 = 75^\circ$, $\angle 2 = 105^\circ$, $\angle 3 = 75^\circ$, $\angle 4 = 105^\circ$, $\angle 5 = 75^\circ$, $\angle 6 = 105^\circ$, $\angle 7 = 75^\circ$, $\angle 8 = 105^\circ$

Q7. In Fig. 64, AB || CD and a transversal PQ cuts at L and M respectively. If $\angle QMD = 100^\circ$, find all the other angles.

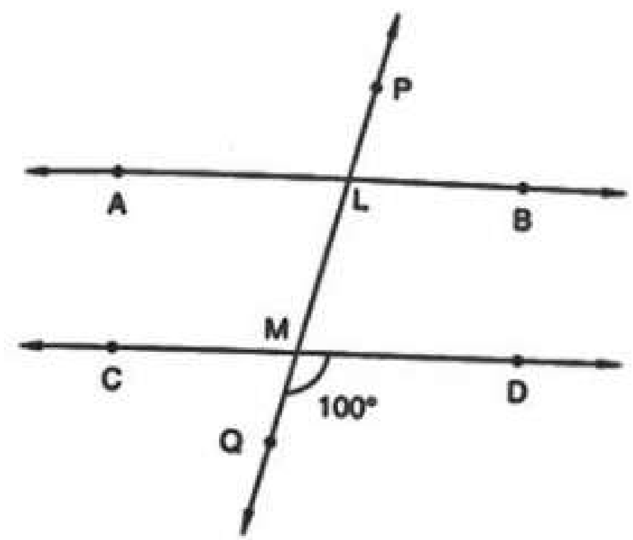


Fig. 64

Sol:

Given that, AB || CD and $\angle QMD = 100^\circ$

We know that,

Linear pair,

$\angle QMD + \angle QMC = 180^\circ$

=> $\angle QMC = 180^\circ - \angle QMD$

=> $\angle QMC = 180^\circ - 100^\circ$

=> $\angle QMC = 80^\circ$

Corresponding angles,

$\angle DMQ = \angle BLM = 100^\circ$

$\angle CMQ = \angle ALM = 80^\circ$

Vertically Opposite angles,

$\angle DMQ = \angle CML = 100^\circ$

$\angle BLM = \angle PLA = 100^\circ$

$\angle CMQ = \angle DML = 80^\circ$

$\angle ALM = \angle PLB = 80^\circ$

Q8. In Fig. 65, l || m and p || q. Find the values of x,y,z,t.

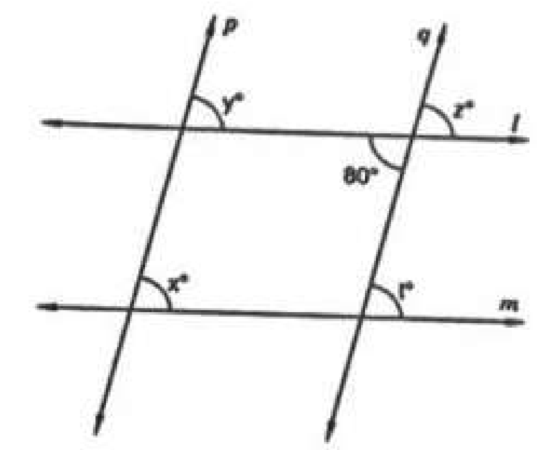


Fig. 65

Sol:

Give that , angle is 80°

$\angle z$ and 80° are vertically opposite angles

=> $\angle z = 80^\circ$

$\angle z$ and $\angle t$ are corresponding angles

=> $\angle z = \angle t$

Therefore, $\angle t = 80^\circ$

$\angle z$ and $\angle y$ are corresponding angles

=> $\angle z = \angle y$

Therefore, $\angle y = 80^\circ$

$\angle x$ and $\angle y$ are corresponding angles

=> $\angle y = \angle x$

Therefore, $\angle x = 80^\circ$

Q9. In Fig. 66, line l || m, $\angle 1 = 120^\circ$ and $\angle 2 = 100^\circ$, find out $\angle 3$ and $\angle 4$.

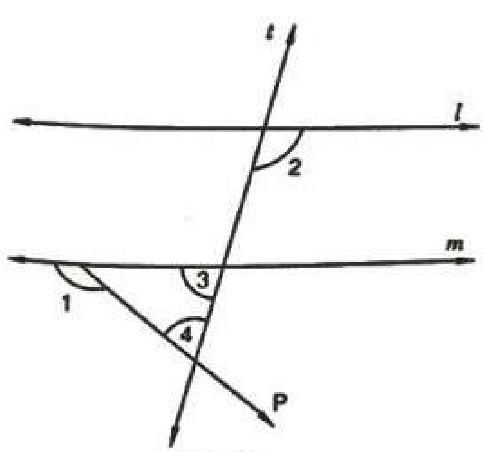


Fig. 66

Sol:

Given that, $\angle 1 = 120^\circ$ and $\angle 2 = 100^\circ$

$\angle 1$ and $\angle 5$ a linear pair

=> $\angle 1 + \angle 5 = 180^\circ$

=> $\angle 5 = 180^\circ - 120^\circ$

=> $\angle 5 = 60^\circ$

Therefore, $\angle 5 = 60^\circ$

$\angle 2$ and $\angle 6$ are corresponding angles

=> $\angle 2 = \angle 6 = 100^\circ$

Therefore, $\angle 6 = 100^\circ$

$\angle 6$ and $\angle 3$ a linear pair

=> $\angle 6 + \angle 3 = 180^\circ$

=> $\angle 3 = 180^\circ - 100^\circ$

=> $\angle 3 = 80^\circ$

Therefore, $\angle 3 = 80^\circ$

By, angles of sum property

=> $\angle 3 + \angle 5 + \angle 4 = 180^\circ$

=> $\angle 4 = 180^\circ - 80^\circ - 60^\circ$

=> $\angle 4 = 40^\circ$

Therefore, $\angle 4 = 40^\circ$

Q10. In Fig. 67, l || m. Find the values of a,b,c,d. Give reasons.

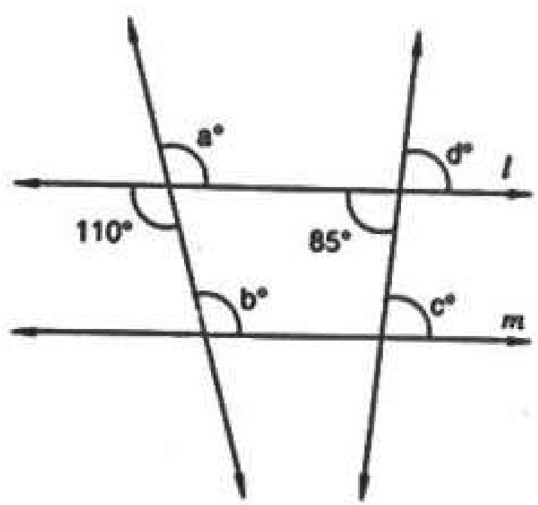


Fig. 67

Sol:

Given that, l || m

Vertically opposite angles,

$\angle a = 110^\circ$

Corresponding angles,

$\angle a = \angle b$

Therefore, $\angle b = 110^\circ$

Vertically opposite angle,

$\angle d = 85^\circ$

Corresponding angles,

$\angle d = \angle c$

Therefore, $\angle c = 85^\circ$

Hence, $\angle a = 110^\circ$, $\angle b = 110^\circ$, $\angle c = 85^\circ$, $\angle d = 85^\circ$

Q11. In Fig. 68, AB || CD and $\angle 1$ and $\angle 2$ are in the ratio of 3 : 2. Determine all angles from 1 to 8.

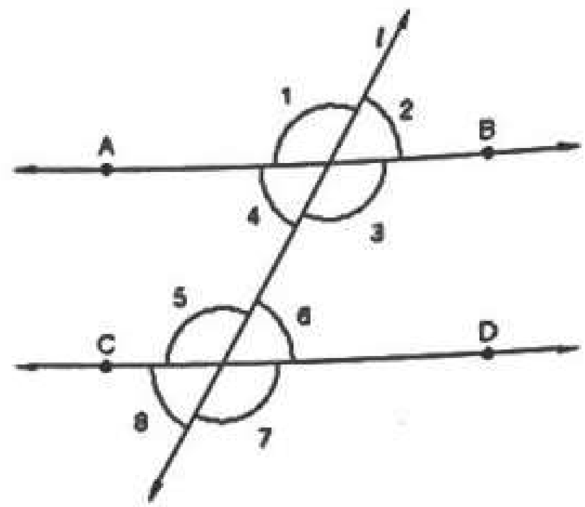


Fig. 68

Sol:

Given that,

$\angle 1$ and $\angle 2$ are 3 : 2

Let us take the angles as 3x, 2x

$\angle 1$ and $\angle 2$ are linear pair

=> $3x + 2x = 180^\circ$

=> $5x = 180^\circ$

=> $x = \frac{180^\circ}{5}$

=> $x = 36^\circ$

Therefore, $\angle 1 = 3x = 3(36) = 108^\circ$

$\angle 2 = 2x = 2(36) = 72^\circ$

$\angle 1$ and $\angle 5$ are corresponding angles

=> $\angle 1 = \angle 5$

Therefore, $\angle 5 = 108^\circ$

$\angle 2$ and $\angle 6$ are corresponding angles

=> $\angle 2 = \angle 6$

Therefore, $\angle 6 = 72^\circ$

$\angle 4$ and $\angle 6$ are alternate pair of angles

=> $\angle 4 = \angle 6 = 72^\circ$

Therefore, $\angle 4 = 72^\circ$

$\angle 3$ and $\angle 5$ are alternate pair of angles

=> $\angle 3 = \angle 5 = 108^\circ$

Therefore, $\angle 5 = 108^\circ$

$\angle 2$ and $\angle 8$ are alternate exterior of angles

=> $\angle 2 = \angle 8 = 72^\circ$

Therefore, $\angle 8 = 72^\circ$

$\angle 1$ and $\angle 7$ are alternate exterior of angles

=> $\angle 1 = \angle 7 = 108^\circ$

Therefore, $\angle 7 = 108^\circ$

Hence, $\angle 1 = 108^\circ$, $\angle 2 = 72^\circ$, $\angle 3 = 108^\circ$, $\angle 4 = 72^\circ$, $\angle 5 = 108^\circ$, $\angle 6 = 72^\circ$, $\angle 7 = 108^\circ$, $\angle 8 = 72^\circ$

Q12. In Fig. 69 l, m and n are parallel lines intersected by transversal p at X, Y and Z respectively. Find $\angle 1$, $\angle 2$ and $\angle 3$.

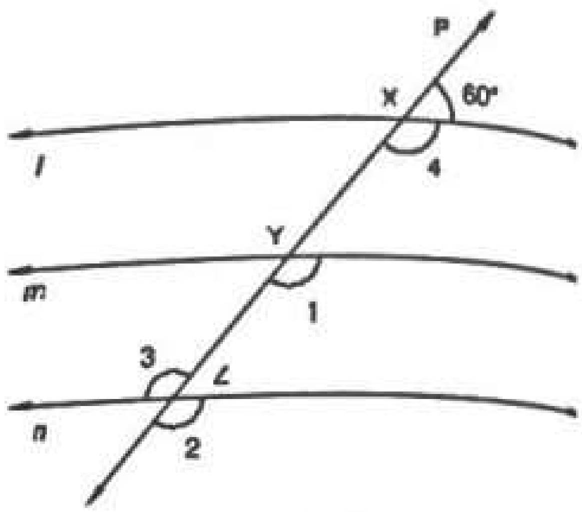


Fig. 69

Sol:

Linear pair,

=> $\angle 4 + 60^\circ = 180^\circ$

=> $\angle 4 = 180^\circ - 60^\circ$

=> $\angle 4 = 120^\circ$

$\angle 4$ and $\angle 1$ are corresponding angles

=> $\angle 4 = \angle 1$

Therefore, $\angle 1 = 120^\circ$

$\angle 1$ and $\angle 2$ are corresponding angles

=> $\angle 2 = \angle 1$

Therefore, $\angle 2 = 120^\circ$

$\angle 2$ and $\angle 3$ are vertically opposite angles

=> $\angle 2 = \angle 3$

Therefore, $\angle 3 = 120^\circ$

Q13. In Fig. 70, if l || m || n and $\angle 1 = 60^\circ$, find $\angle 2$

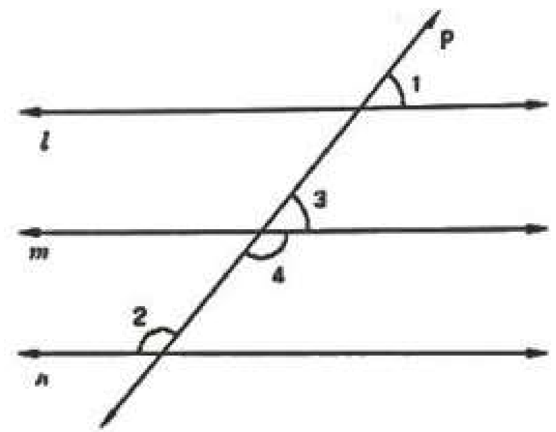


Fig. 70

Sol:

Given that,

Corresponding angles :

∠1 = ∠3

=> ∠1 = 60°

Therefore, ∠3 = 60°

∠3 and ∠4 are linear pair

=> ∠3 + ∠4 = 180°

=> ∠4 = 180° – 60°

=> ∠4 = 120°

∠3 and ∠4 are alternative interior angles

=> ∠4 = ∠2

Therefore, ∠2 = 120°

Q14. In Fig. 71, if AB || CD and CD|| EF, find ∠ACE.

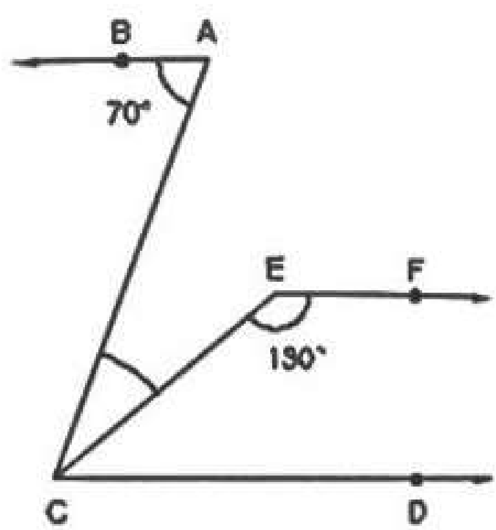


Fig. 71

Sol :

Given that,

Sum of the interior angles,

=> $\angle CEF + \angle ECD = 180^\circ$

=> $130^\circ + \angle ECD = 180^\circ$

=> $\angle ECD = 180^\circ - 130^\circ$

=> $\angle ECD = 50^\circ$

We know that alternate angles are equal

=> $\angle BAC = \angle ACD$

=> $\angle BAC = \angle ECD + \angle ACE$

=> $\angle ACE = 70^\circ - 50^\circ$

=> $\angle ACE = 20^\circ$

Therefore, $\angle ACE = 20^\circ$

Q15. In Fig. 72, if l || m, n || p and $\angle 1 = 85^\circ$, find $\angle 2$.

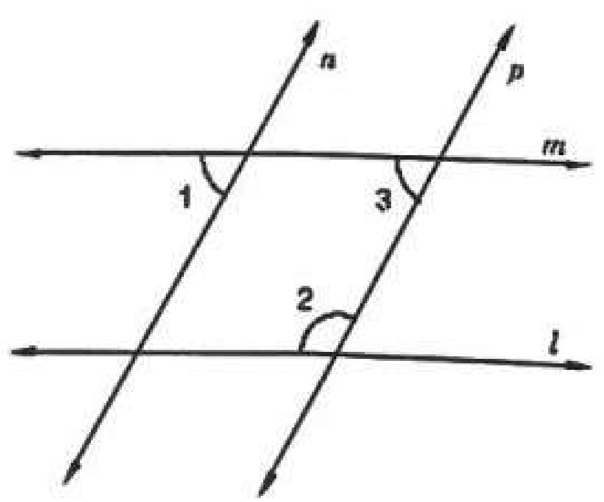


Fig. 72

Sol:

Given that, $\angle 1 = 85^\circ$

$\angle 1$ and $\angle 3$ are corresponding angles

So, $\angle 1 = \angle 3$

=> $\angle 3 = 85^\circ$

Sum of the interior angles

=> $\angle 3 + \angle 2 = 180^\circ$

=> $\angle 2 = 180^\circ - 85^\circ$

=> $\angle 2 = 95^\circ$

Q16. In Fig. 73, a transversal n cuts two lines l and m. If $\angle 1 = 70^\circ$ and $\angle 7 = 80^\circ$, is l || m?

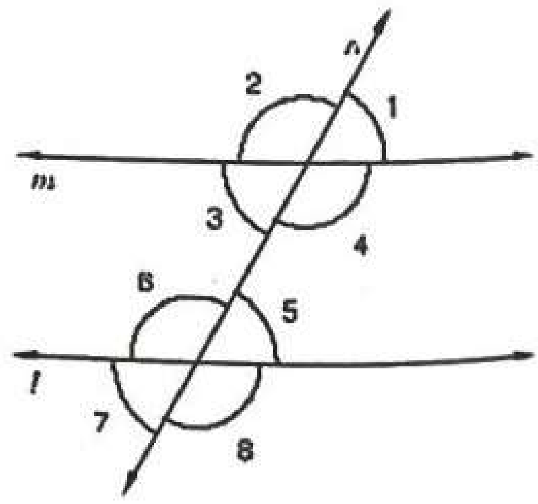


Fig. 73

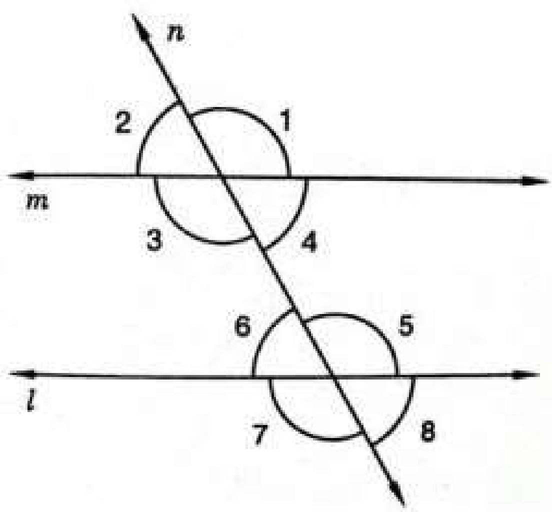
Sol:

We know that if the alternate exterior angles of the two lines are equal, then the lines are parallel.

Here, $\angle 1$ and $\angle 7$ are alternate exterior angles , but they are not equal

=> $\angle 1 \neq \angle 7 \neq 80°$

Q17. In Fig. 74, a transversal n cuts two lines l and m such that $\angle 2 = 65°$ and $\angle 8 = 65°$. Are the lines parallel?



Sol:

vertically opposite angels,

$\angle 2 = \angle 3 = 65°$

$\angle 8 = \angle 6 = 65°$

Therefore, $\angle 3 = \angle 6$

Hence , l || m

Q18. In Fig. 75, Show that AB || EF.

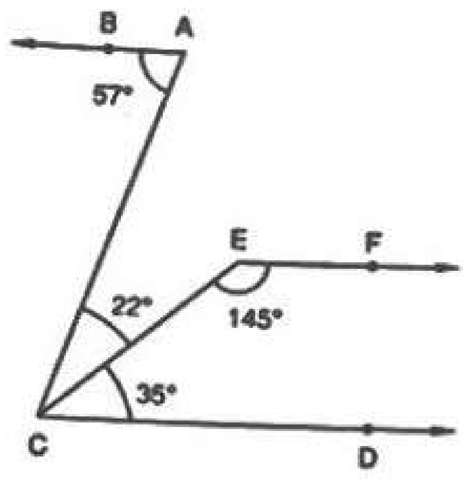


Fig. 75

Sol:

We know that,

$\angle ACD = \angle ACE + \angle ECD$

=> $\angle ACD = 35^\circ + 22^\circ$

=> $\angle ACD = 57^\circ = \angle BAC$

Thus, lines BA and CD are intersected by the line AC such that, $\angle ACD = \angle BAC$

So, the alternate angles are equal

Therefore, AB || CD ——— 1

Now,

$\angle ECD + \angle CEF = 35^\circ + 45^\circ = 180^\circ$

This, shows that sum of the angles of the interior angles on the same side of the transversal CE is 180 degrees

So, they are supplementary angles

Therefore, EF || CD ———— 2

From eq 1 and 2

We can say that, AB || EF

Q19. In Fig. 76, AB || CD. Find the values of x,y,z.

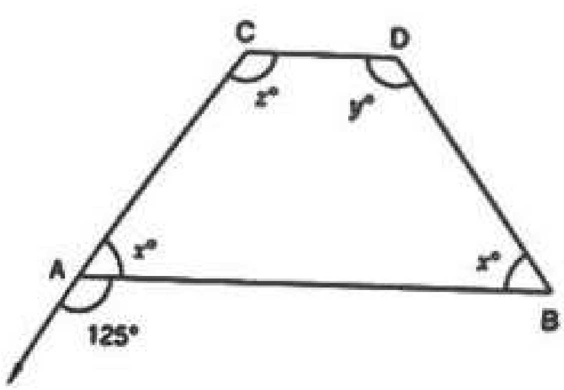


Fig. 76

Sol:

Linear pair,

=> $\angle x + 125^\circ = 180^\circ$

=> $\angle x = 180^\circ - 125^\circ$

=> $\angle x = 55^\circ$

Corresponding angles

=> $\angle z = 125^\circ$

Adjacent interior angles

=> $\angle x + \angle z = 180^\circ$

=> $\angle x + 125^\circ = 180^\circ$

=> $\angle x = 180^\circ - 125^\circ$

=> $\angle x = 55^\circ$

Adjacent interior angles

=> $\angle x + \angle y = 180^\circ$

=> $\angle y + 55^\circ = 180^\circ$

=> $\angle y = 180^\circ - 55^\circ$

=> $\angle y = 125^\circ$

Q20. In Fig. 77, find out $\angle PXR$, if PQ || RS.

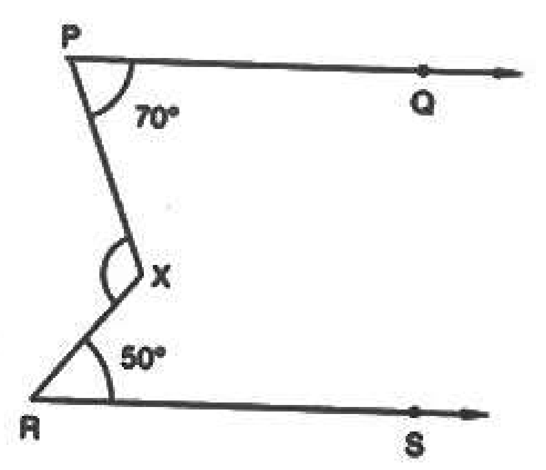


Fig. 77

Sol:

We need to find $\angle PXR$

$\angle XRS = 50^\circ$

$\angle XPR = 70^\circ$

Given, that PQ || RS

$\angle PXR = \angle XRS + \angle XPR$

$\angle PXR = 50^\circ + 70^\circ$

$\angle PXR = 120^\circ$

Therefore, $\angle PXR = 120^\circ$

Q21. In Fig. 78, we have

(i) $\angle MLY = 2\angle LMQ$

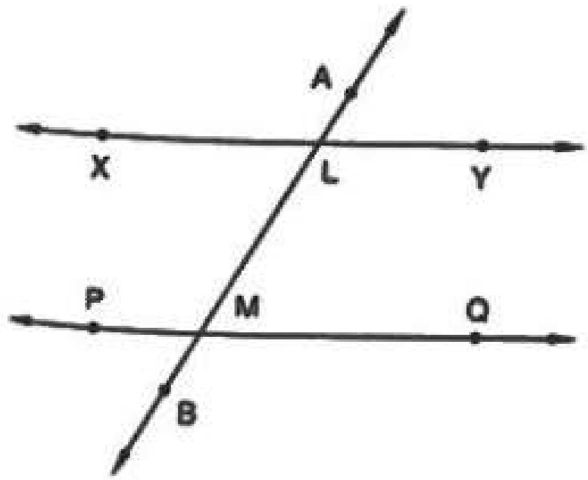


Fig. 78

Sol:

$\angle MLY$ and $\angle LMQ$ are interior angles

=> $\angle MLY + \angle LMQ = 180^\circ$

=> $2\angle LMQ + \angle LMQ = 180^\circ$

=> $3\angle LMQ = 180^\circ$

=> $\angle LMQ = \frac{180^\circ}{3}$

=> $\angle LMQ = 60^\circ$

(ii) $\angle XLM = (2x - 10)^\circ$ **and** $\angle LMQ = (x + 30)^\circ$**, find x.**

Sol:

$\angle XLM = (2x - 10)^\circ$ and $\angle LMQ = (x + 30)^\circ$

$\angle XLM$ and $\angle LMQ$ are alternate interior angles

=> $\angle XLM = \angle LMQ$

=> $(2x - 10)^\circ = (x + 30)^\circ$

=> $2x - x = 30^\circ + 10^\circ$

=> $x = 40^\circ$

Therefore, $x = 40^\circ$

(iii) $\angle XLM = \angle PML$**, find** $\angle ALY$

Sol:

$\angle XLM = \angle PML$

Sum of interior angles is 180 degrees

=> $\angle XLM + \angle PML = 180^\circ$

=> $\angle XLM + \angle XLM = 180^\circ$

=> $2\angle XLM = 180^\circ$

=> $\angle XLM = \frac{180^\circ}{2}$

=> $\angle XLM = 90^\circ$

$\angle XLM$ and $\angle ALY$ are vertically opposite angles

Therefore, $\angle ALY = 90^\circ$

(iv) $\angle ALY = (2x - 15)^\circ$, $\angle LMQ = (x + 40)^\circ$, **find x.**

Sol:

$\angle ALY$ and $\angle LMQ$ are corresponding angles

=> $\angle ALY = \angle LMQ$

=> $(2x - 15)^\circ = (x + 40)^\circ$

=> $2x - x = 40^\circ + 15^\circ$

=> $x = 55^\circ$

Therefore, $x = 55^\circ$

Q22. In Fig. 79, DE || BC. Find the values of x and y.

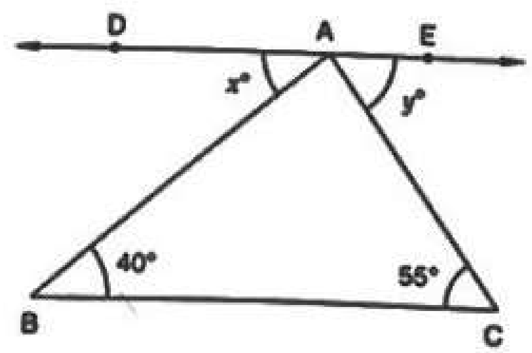


Fig. 79

Sol:

We know that, ABC, DAB are alternate interior angles

$\angle ABC = \angle DAB$

So, $x = 40^\circ$

And ACB, EAC are alternate interior angles

$\angle ACB = \angle EAC$

So, $y = 40^\circ$

Q23. In Fig. 80, line AC || line DE and $\angle ABD = 32^\circ$**, Find out the angles x and y if** $\angle E = 122^\circ$**.**

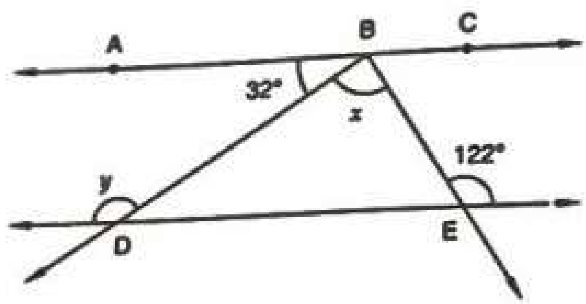


Fig. 80

Sol:

$\angle BDE = \angle ABD = 32°$ – alternate interior angles

=> $\angle BDE + y = 180°$ – linear pair

=> $32° + y = 180°$

=> $y = 180° - 32°$

=> $y = 148°$

$\angle ABE = \angle E = 32°$ – alternate interior angles

=> $\angle ABD + \angle DBE = 122°$

=> $32° + x = 122°$

=> $x = 122° - 32°$

=> $x = 90°$

Q24. In Fig. 81, side BC of ΔABC has been produced to D and CE || BA. If $\angle ABC = 65°$, $\angle BAC = 55°$, find $\angle ACE$, $\angle ECD$, $\angle ACD$.

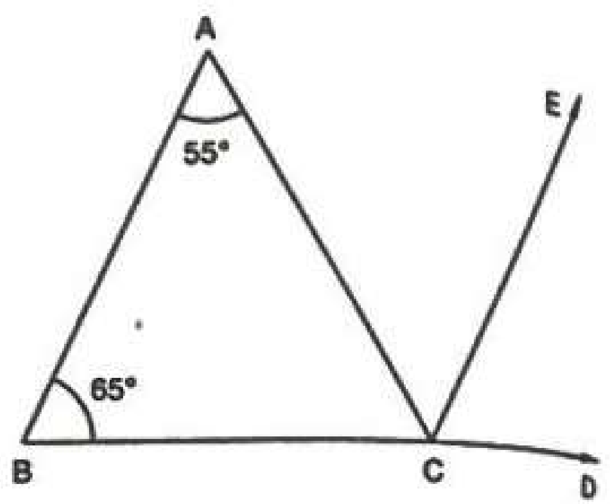


Fig. 81

Sol:

Corresponding angles,

$\angle ABC = \angle ECD = 55°$

Alternate interior angles,

$\angle BAC = \angle ACE = 65°$

Now, $\angle ACD = \angle ACE + \angle ECD$

=> $\angle ACD = 55° + 65°$

$= 120°$

Q25. In Fig. 82, line CA ⊥ AB || line CR and line PR || line BD. Find $\angle x$, $\angle y$, $\angle z$.

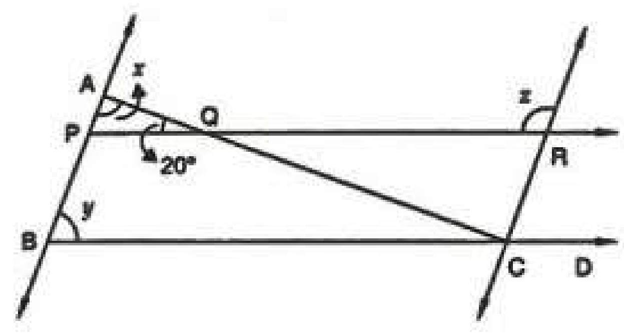


Fig. 82

Sol:

Given that, CA ⊥ AB

=> $\angle CAB = 90^\circ$

=> $\angle AQP = 20^\circ$

By, angle of sum property

In ΔAPD

=> $\angle CAB + \angle AQP + \angle APQ = 180^\circ$

=> $\angle APQ = 180^\circ - 90^\circ - 20^\circ$

=> $\angle APQ = 70^\circ$

y and $\angle APQ$ are corresponding angles

=> $y = \angle APQ = 70^\circ$

$\angle APQ$ and $\angle z$ are interior angles

=> $\angle APQ + \angle z = 180^\circ$

=> $\angle z = 180^\circ - 70^\circ$

=> $\angle z = 110^\circ$

Q26. In Fig. 83, PQ || RS. Find the value of x.

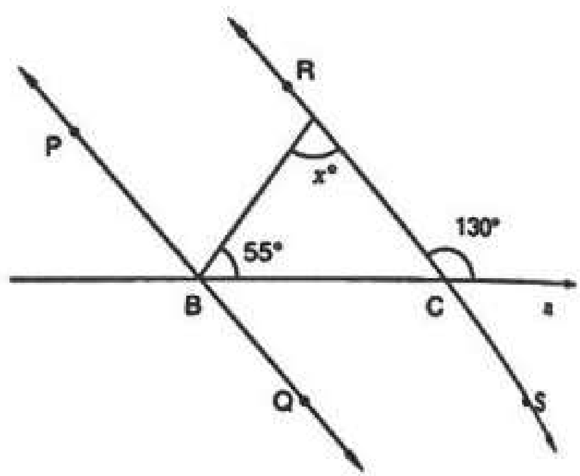


Fig. 83

Sol:

Given,

Linear pair,

$\angle RCD + \angle RCB = 180°$

=> $\angle RCB = 180° - 130°$

$= 50°$

In ΔABC,

$\angle BAC + \angle ABC + \angle BCA = 180°$

By, angle sum property

=> $\angle BAC = 180° - 55° - 50°$

=> $\angle BAC = 75°$

Q27. In Fig. 84, AB || CD and AE || CF, $\angle FCG = 90°$ and $\angle BAC = 120°$. Find the value of x, y and z.

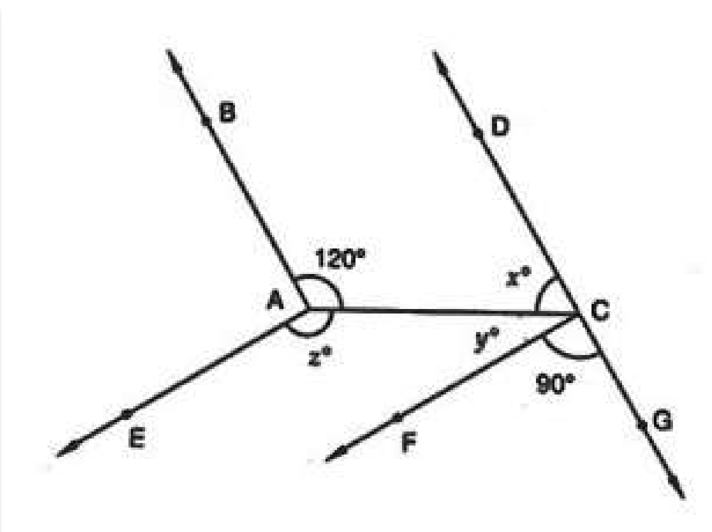


Fig. 84

Sol:

Alternate interior angle

$\angle BAC = \angle ACG = 120°$

=> $\angle ACF + \angle FCG = 120°$

So, $\angle ACF = 120° - 90°$

$= 30°$

Linear pair,

$\angle DCA + \angle ACG = 180°$

=> $\angle x = 180° - 120°$

$= 60°$

$\angle BAC + \angle BAE + \angle EAC = 360°$

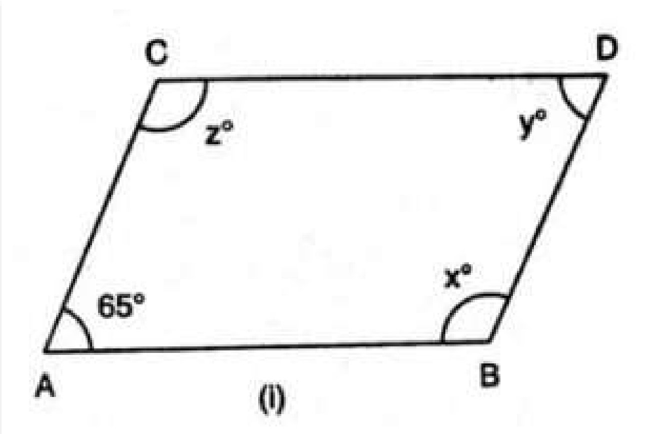
$\angle CAE = 360° - 120° - (60° + 30°)$

$= 150°$

Q28. In Fig. 85, AB || CD and AC || BD. Find the values of x,y,z.

Sol:

(i)



Since, AC || BD and CD || AB, ABCD is a parallelogram

Adjacent angles of parallelogram,

$\angle CAD + \angle ACD = 180^\circ$

=> $\angle ACD = 180^\circ - 65^\circ$

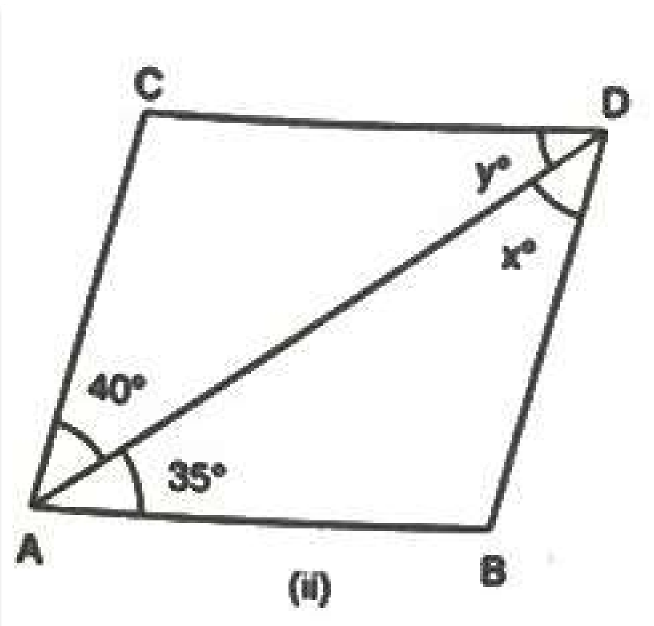
$= 115^\circ$

Opposite angles of parallelogram,

=> $\angle CAD = \angle CDB = 65^\circ$

=> $\angle ACD = \angle DBA = 115^\circ$

(ii)



here,

AC || BD and CD || AB

Alternate interior angles,

$\angle DCA = x = 40^\circ$

$\angle DAB = y = 35^\circ$

Q29. In Fig. 86, state which lines are parallel and why?

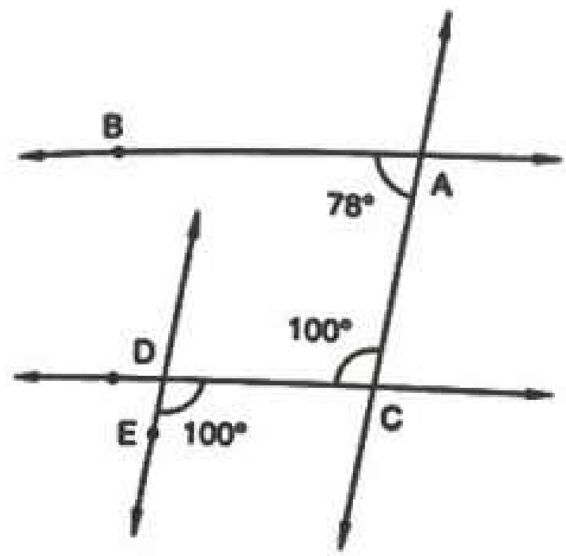


Fig. 86

Sol:

Let, F be the point of intersection of the line CD and the line passing through point E.

Here, $\angle ACD$ and $\angle CDE$ are alternate and equal angles.

So, $\angle ACD = \angle CDE = 100^\circ$

Therefore, AC || EF

Q30. In Fig. 87, the corresponding arms of $\angle ABC$ and $\angle DEF$ are parallel. If $\angle ABC = 75^\circ$, find $\angle DEF$.

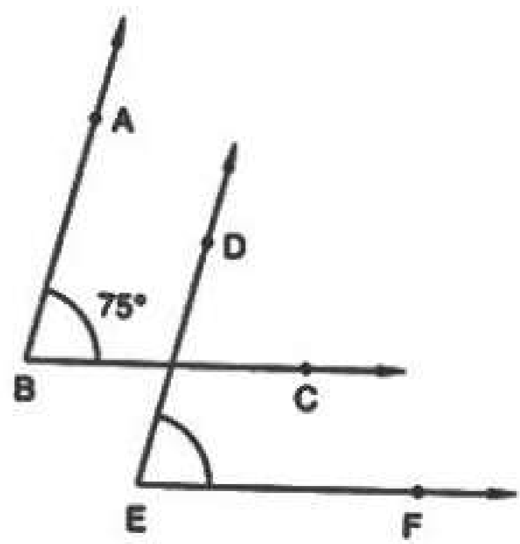


Fig. 87

Sol:

Let, G be the point of intersection of the lines BC and DE

Since, AB || DE and BC || EF

The corresponding angles,

=> $\angle ABC = \angle DGC = \angle DEF = 100^\circ$