



## MATHS

### BOOKS - NAGEEN MATHS (HINGLISH)

### QUADRILATERALS

#### Solved Examples

1. The angles of a quadrilateral are in the ratio 3:4:5:6. Find all its angles.

 [Watch Video Solution](#)

2. Three angles of a quadrilateral are in the ratio 4:6:3. If the fourth angle is  $100^\circ$  find the three angles of the quadrilateral.



Watch Video Solution

3. The angles of a quadrilateral are in the ratio 4:3:6:5. Show that it is a trapezium.

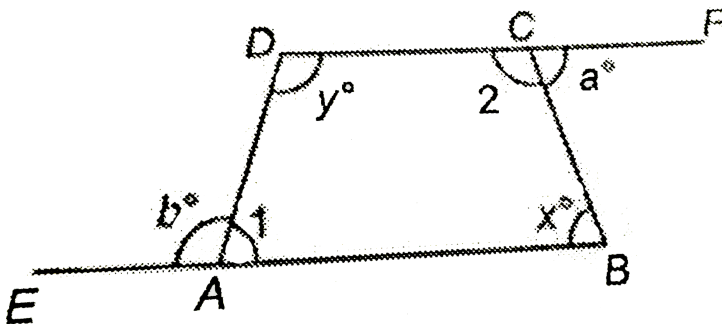


Watch Video Solution

4. The side BA and DC of a quadrilateral ABCD are produced to E and F respectively. If

$\angle BCF = a^\circ$ ,  $\angle ABC = x^\circ$ ,  $\angle ADC = y^\circ$  and  $\angle DAE = b^\circ$ ,

then find relation between a, b, x and y



A.  $x - y = a + b$

B.  $x + y = a - b$

C.  $x - y = a - b$

D.  $x + y = a + b$

**Answer: D**



**Watch Video Solution**

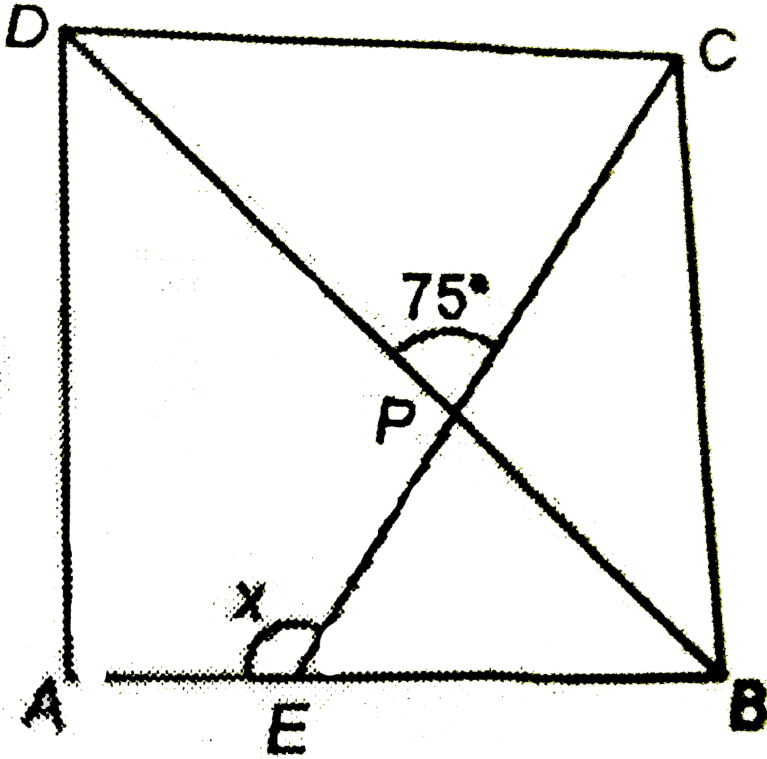
5. In a rectangle ABCD, diagonals AC and BD intersect at O. If  $\angle OAB = 35^\circ$ , find :

(a)  $\angle ABC$  (b)  $\angle ABO$  (c)  $\angle CO$  (d)  $\angle BOC$



**Watch Video Solution**

6. In the given figure,  $ABCD$  is a square. Find  $x$ .



- A.  $60^\circ$
- B.  $120^\circ$
- C.  $100^\circ$
- D.  $110^\circ$

**Answer: B**



[Watch Video Solution](#)

7. In a quadrilateral ABCD, AO and BO are the bisectors of  $\angle A$  and  $\angle B$  respectively. Prove that  $\angle AOB = \frac{1}{2}(\angle C + \angle D)$ .



[Watch Video Solution](#)

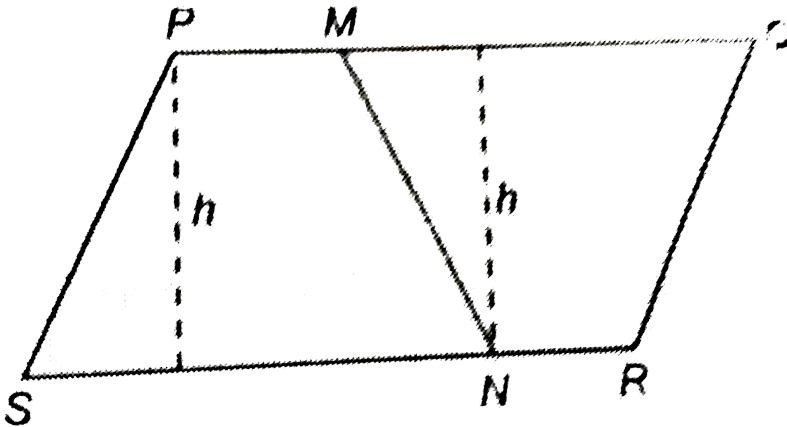
8. In a parallelogram ABCD, the bisectors of  $\angle A$  and  $\angle B$  intersect each other at point P. Prove that  $\angle APB = 90^\circ$ .



[Watch Video Solution](#)

9. Find the remaining angle of a parallelogram if one of its angles is  $110^\circ$ .

10. PQRS is a parallelogram such that PQ is parallel to SR and SP is parallel to RQ. The length of side PQ is 20 cm. M is point between P and Q such that the length of PM is 3 cm. N is a point between points S and R. Find the length of SN such that segment MN divides the parallelogram in two regions with equal areas.



- A. 15
- B. 17
- C. 16

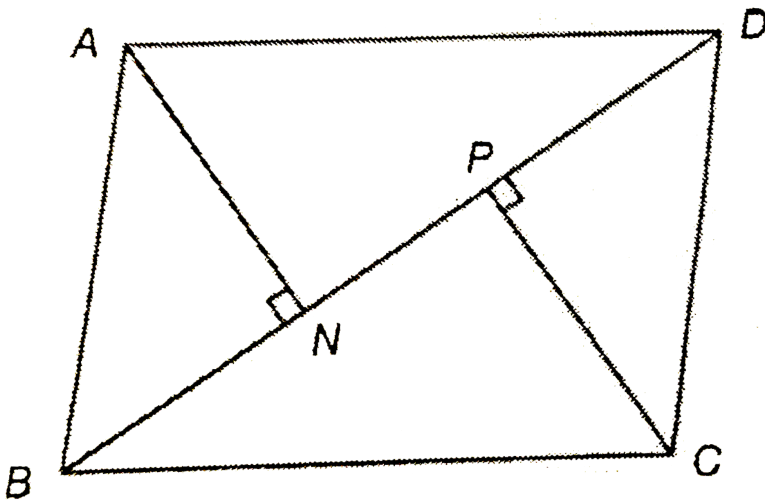
Answer: B

 Watch Video Solution

11. In the given figure, ABCD is a parallelogram in which AN and CP are perpendiculars on diagonal BD. Prove that :

(i)  $\triangle ADN = \triangle CBP$

(ii)  $AN = CP$



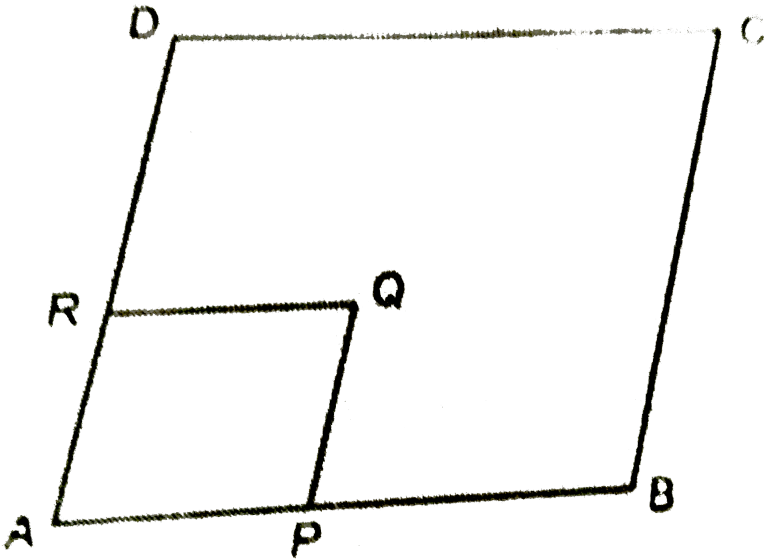
 Watch Video Solution

12. In quadrilateral  $ABCD$ ,  $AB \parallel CD$  and  $AD = BC$ , prove that  $\angle A = \angle B$ .

 Watch Video Solution

13. In the adjoining figure,  $\square ABCD$  and  $\square APQR$  are two parallelograms. Prove that :

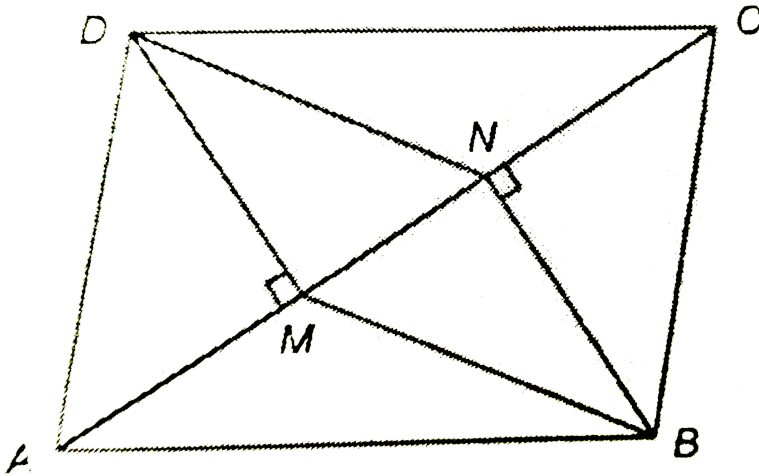
$\angle C = \angle Q$  and  $\angle B = \angle R$





[▶ Watch Video Solution](#)

14. In the given figure,  $\square ABCD$  is a parallelogram. If  $DM \perp AC$  and  $BN \perp AC$ , then show that  $\square BNDM$  is a parallelogram.



[▶ Watch Video Solution](#)

15. The median  $AD$  of  $\triangle ABC$  is produced upto  $X$  such that  $AD = DX$ .

Prove that  $\square ABXC$  is a parallelogram.

[▶ Watch Video Solution](#)

16. ABCD is a parallelogram. Two points P and Q are taken on sides AD and BC respectively such that  $AP = \frac{1}{3}AD$  and  $CQ = \frac{1}{3}BC$ . Prove that  $\square AQCP$  is a parallelogram.

 [Watch Video Solution](#)

17. A cyclic polygon has  $n$  sides such that each of its interior angles measures  $114^\circ$ . What is the measure of the angle subtended by each of its sides at the geometrical centre of the polygon?

 [Watch Video Solution](#)

18. The number of diagonals of a regular polygon is 27. Then, find the measure of each of the interior angles of the polygon.

A.  $120^\circ$

B.  $130^\circ$

C.  $150^\circ$

D.  $140^\circ$

**Answer: D**



[Watch Video Solution](#)

**19.** P is the mid-point of side AB of parallelogram ABCD. A line drawn from B parallel to PD meets CD at Q and AD produce at R. Prove that :

(i)  $AR = 2BC$  (ii)  $BR = 2BQ$



[Watch Video Solution](#)

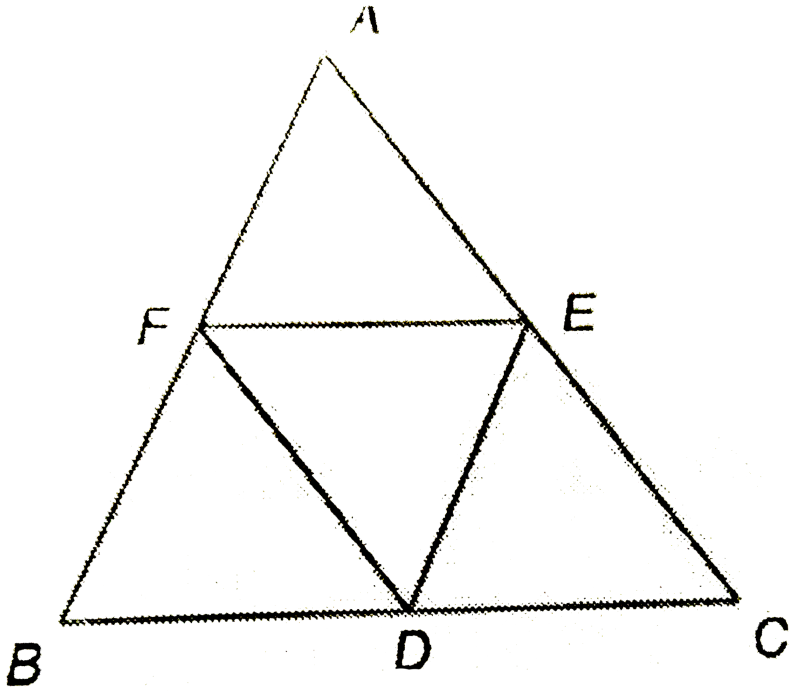
20. E and F are the mid-points of the sides AB and CD of a parallelogram ABCD. Prove that the line segment AF and CE trisects BD in three equal parts.



Watch Video Solution

21. In the adjoining figure D, E and F are the mid-points of the sides BC, CA and AB of the equilateral  $\triangle ABC$ . Prove that  $\triangle DEF$  is also

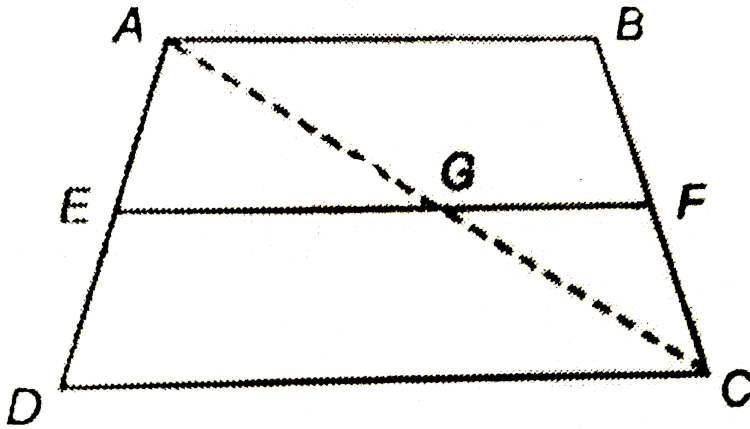
an equilateral triangle.



[▶ Watch Video Solution](#)

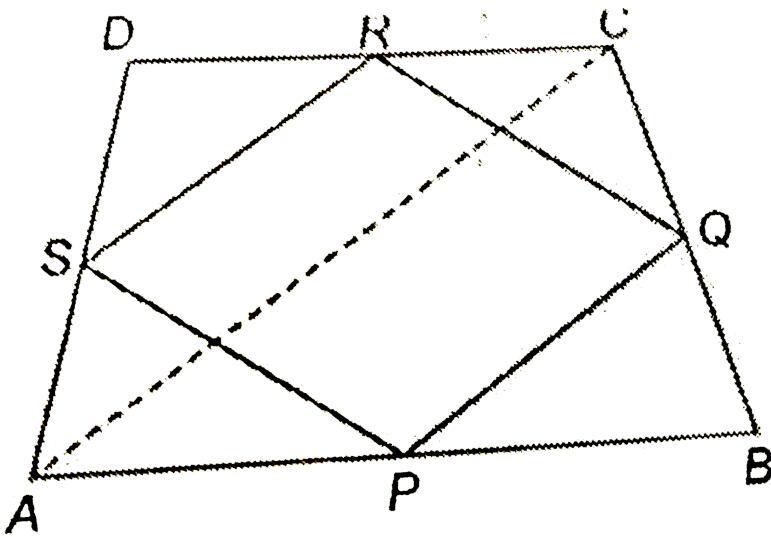
22. In the given figure.  $ABCD$  is a trapezium in which  $AB \parallel DC$  and  $E$  is the mid-point of  $AD$ , if  $EF \parallel DC$ , then show that

$$EF = \frac{1}{2}(AB + DC).$$



[▶ Watch Video Solution](#)

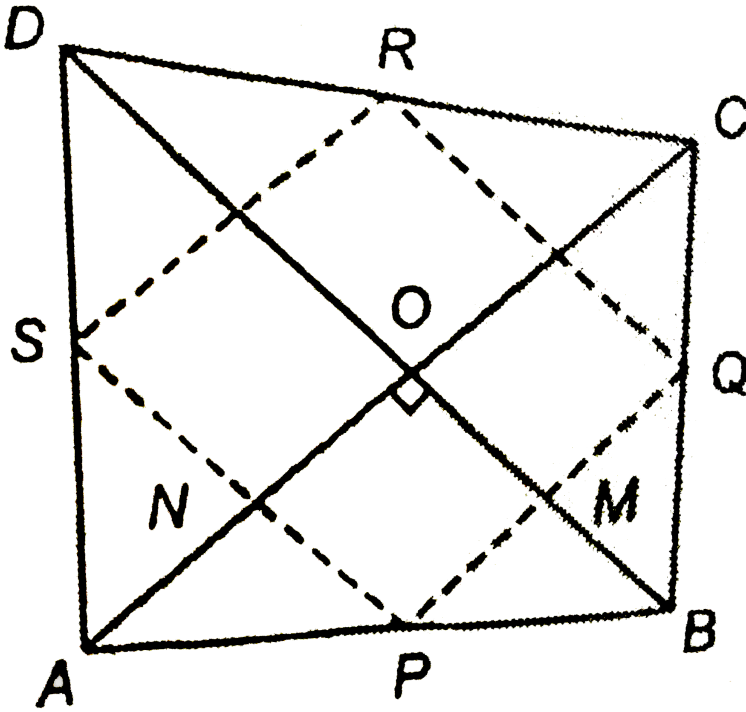
23. Prove that the figure formed by joining the mid-points of the pairs of consecutive sides of a quadrilateral is a parallelogram.



[Watch Video Solution](#)

24. The diagonals of a quadrilateral  $ABCD$  are mutually perpendicular. Prove that the quadrilateral formed by joining the

mid-points of its consecutive sides is a rectangle.



[Watch Video Solution](#)

25. Show that the quadrilateral formed by joining the mid-points of the consecutive sides of a rectangle is a rhombus.

[Watch Video Solution](#)



**26.** Show that the lines joining the mid-points of opposite sides of a quadrilateral bisect each other.



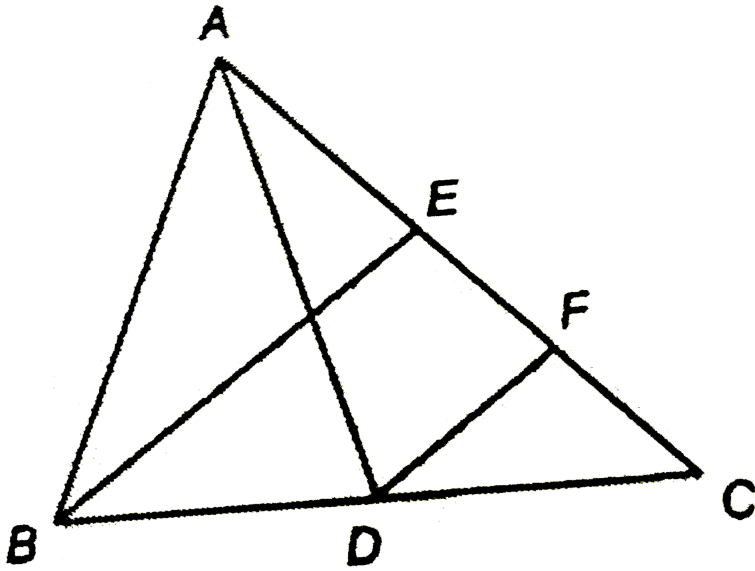
[Watch Video Solution](#)

**27.** Prove that the line joining the mid-points of the diagonals of a trapezium is parallel to the parallel sides of trapezium and is half of their difference.



[Watch Video Solution](#)

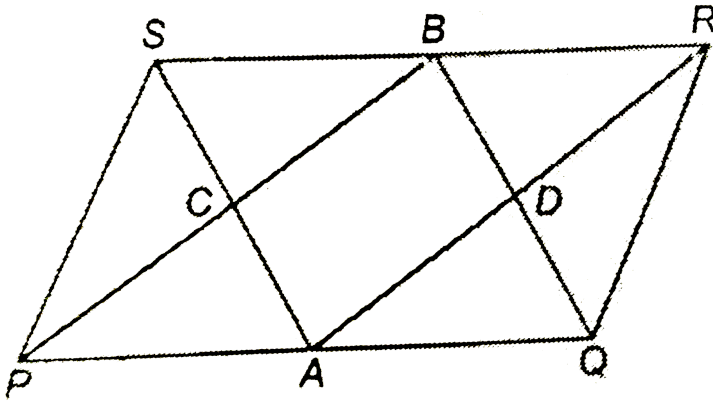
**28.** In the adjoining figure.  $AD$  and  $BE$  are two medians of  $\triangle ANC$ . if  $DF \parallel BE$ , then prove that  $CG = \frac{1}{4}AC$ .



[▶ Watch Video Solution](#)

29. In the adjoining figure, PQRS is a parallelogram. A and B are the mid-points of PQ of SR respectively. If  $PS = BR$ , then prove that

quadrilateral  $ADBC$  is a rectangle.



[▶ Watch Video Solution](#)

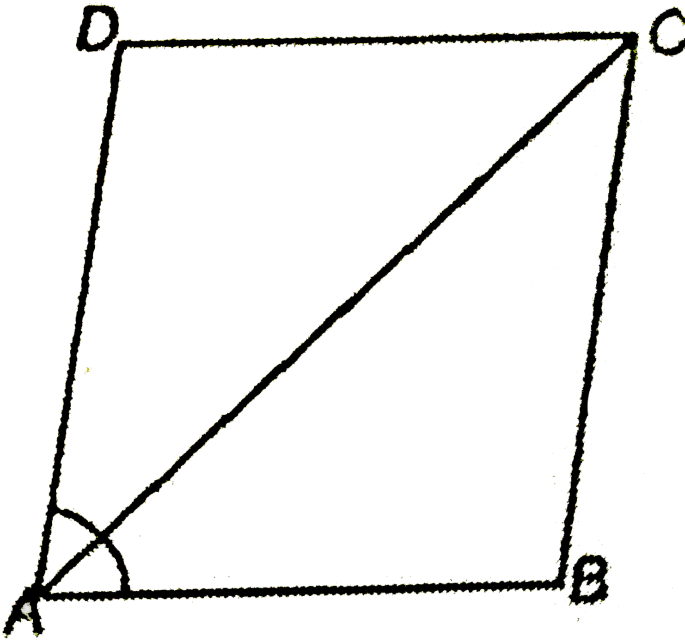
### Problems From Ncert Exemplar

1. Show that if the diagonals of a quadrilateral bisect each other at right angles, then it is a rhombus.

[▶ Watch Video Solution](#)

2. Diagonal AC of a parallelogram ABCD bisects  $\angle A$  (see figure). Show that:

(i) it bisects  $\angle C$  also (ii) ABCD is a rhombus.

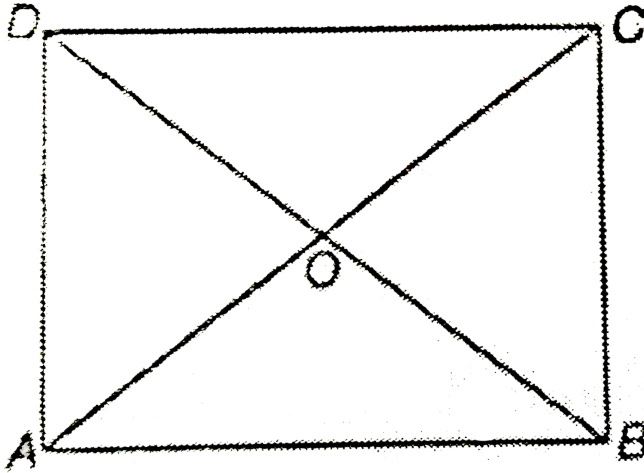


[Watch Video Solution](#)

3. ABCD is a rectangle in which diagonal AC bisects  $\angle A$  as well as  $\angle C$ . Show that

(i) ABCD is a square

(ii) diagonal AD bisects  $\angle B$



 [Watch Video Solution](#)

4. In parallelogram ABCD two points P and Q are taken on diagonal BD such that  $DP = BQ$  (set figure). Show that:

$$(i) \Delta APD \cong \Delta CQB$$

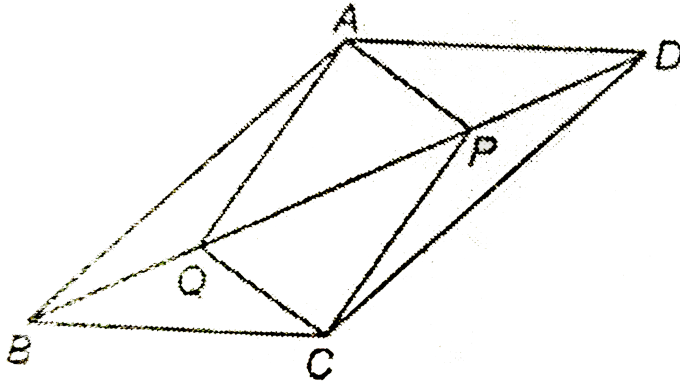
$$(ii) AP = CQ$$

$$(iii) \Delta AQB \cong \Delta CPD$$

$$(iv) AQ = CP$$

Itbegt

(v)  $APCQ$  is a parallelogram.



[▶ Watch Video Solution](#)

5. ABCD is a rhombus and P, Q, R and S are the mid-points of the sides AB, BC, CD and DA respectively. Show that the quadrilateral PQRS is a rectangle.

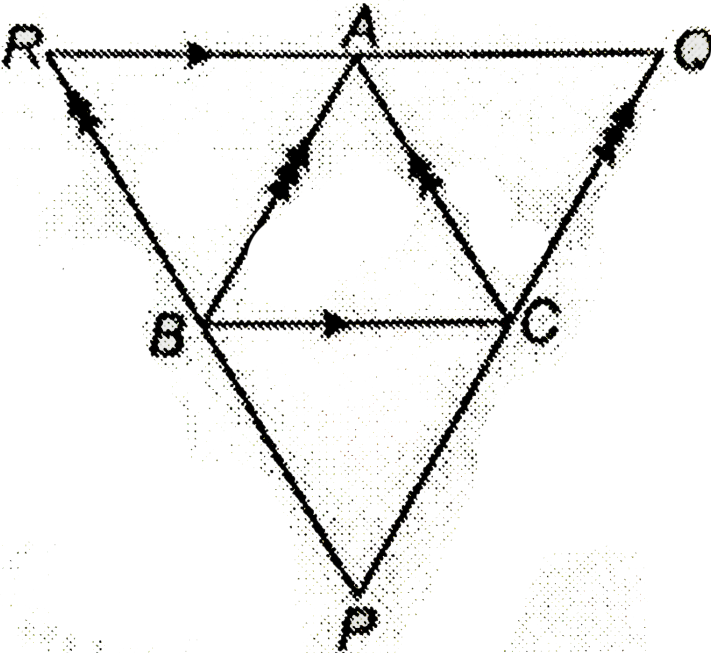
[▶ Watch Video Solution](#)

6. Show that the line segments joining the mid-points of the opposite sides of a quadrilateral bisect each other.

 Watch Video Solution

7. Through A, B and C lines RQ, PR and QP have been drawn, respectively parallel to sides BC, CA and AB of a  $\triangle ABC$  as shown in the given figure. Show that  $BC = \frac{1}{2}QR$ .

the given figure. Show that  $BC = \frac{1}{2}QR$ .





Watch Video Solution

8. In the given figure, P is the mid-point of side BC of a parallelogram ABCD such that  $\angle BAP = \angle DAP$ . Prove that  $AD = 2CD$ .

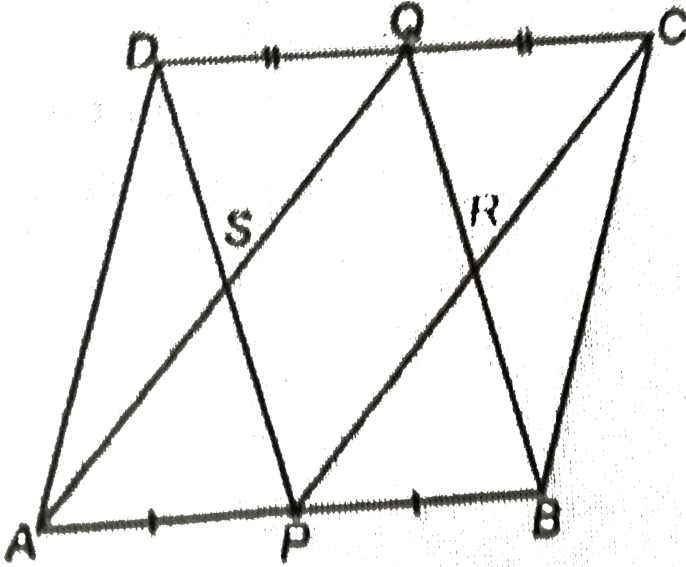


Watch Video Solution

9. P and Q are the mid-point of the opposite sides AB and CD of a parallelogram ABCD. AQ intersects DP at S and BQ intersects CP at R.

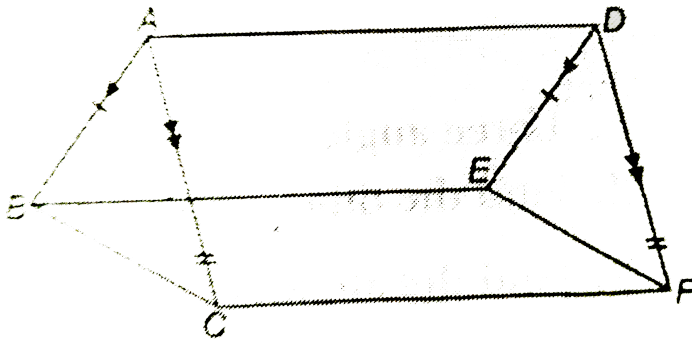


Show that PQRS is a parallelogram.



[Watch Video Solution](#)

10. In the given figure.  $AB \parallel DE$ ,  $AB = DE$ ,  $AC \parallel DF$  and  $AC = DF$ . Then which of the following is correct.



- A.  $BC \parallel EF$
- B.  $BC = EF$
- C. Both A and B
- D. None

**Answer: C**

[▶ Watch Video Solution](#)

11. Prove that the quadrilateral formed by the bisectors of the angles of a parallelogram is a rectangle.

 Watch Video Solution

## Exercise 8 A

1. The angles of a quadrilateral are  $89^\circ$  and  $113^\circ$ . If the other two angles are equal, find the equal angles.

 Watch Video Solution

2. In quadrilateral  $ABCD$ ,  
 $\angle A = 100^\circ$ ,  $\angle B = 70^\circ$  and  $\angle C : \angle D = 8 : 11$ , then find  $\angle D$ .

A.  $100^\circ$

B.  $110^\circ$

C.  $130^\circ$

D.  $80^\circ$

**Answer: B**



**Watch Video Solution**

3. In quadrilateral ABCD, side AB is parallel to side DC. If  $\angle A : \angle D = 1 : 2$  and  $\angle C : \angle B = 4 : 5$ .

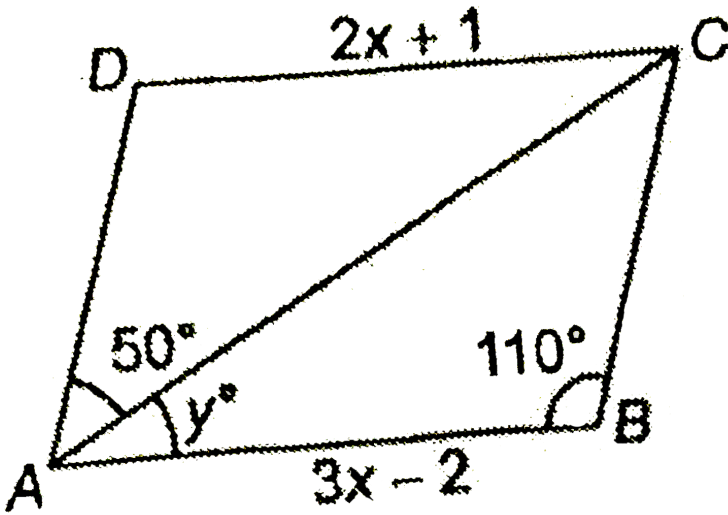
(i) Calculate each angle of the quadrilateral.

(ii) Assign special name to quadrilateral ABCD.



**Watch Video Solution**

4. Find the values of  $x$  and  $y$  from adjoining parallelogram.



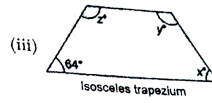
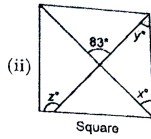
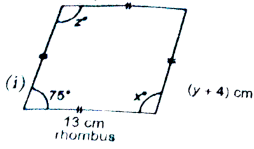
- A.  $x = 4, y = 20^\circ$
- B.  $x = 3, y = 20^\circ$
- C.  $x = 4, y = 30^\circ$
- D. None

Answer: B



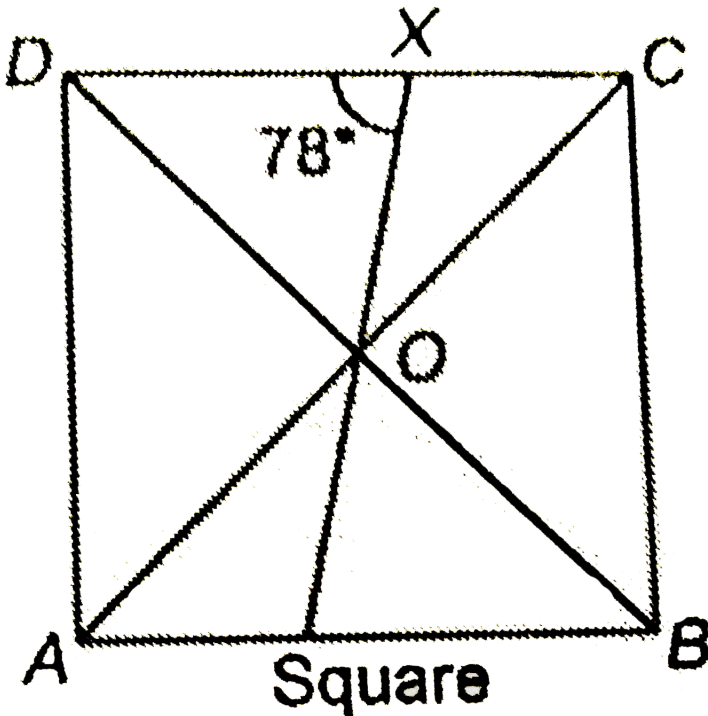
Watch Video Solution

5. Find  $x, y$  and  $z$  in each of the following figure:



[▶ Watch Video Solution](#)

6. In the given figure, find (i)  $\angle XOD$  (ii)  $\angle XOC$



A. (i)  $45^\circ$     (ii)  $53^\circ$

B. (i)  $57^\circ$     (ii)  $33^\circ$

C. (i)  $67^\circ$     (ii)  $31^\circ$

D. (i)  $37^\circ$     (ii)  $23^\circ$

**Answer: B**



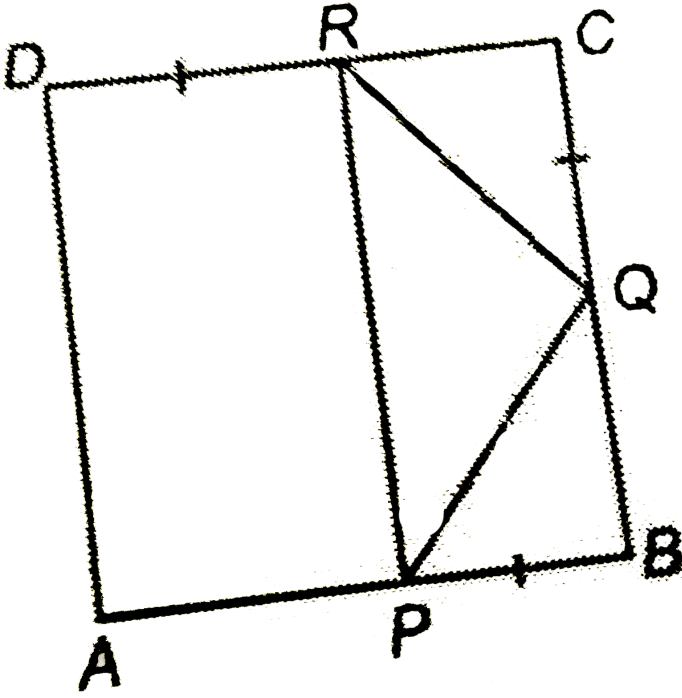
**Watch Video Solution**

7. In the given figure, ABCD is a square and  $\angle PQR = 90^\circ$ . If  $PB = QC = DR$ , prove that.

(i)  $QB = RC$

(ii)  $PQ = QR$

(iii)  $\angle QPR = 45^\circ$



[▶ Watch Video Solution](#)

8. In a square ABCD, diagonals meet at O. P is point on BC such that

$OB = BP$ . Show that (i)  $\angle POC = \left(22\frac{1}{2}\right)^\circ$

(ii)  $\angle BDC = 2\angle POC$

(iii)  $\angle BOP = 3\angle COP$

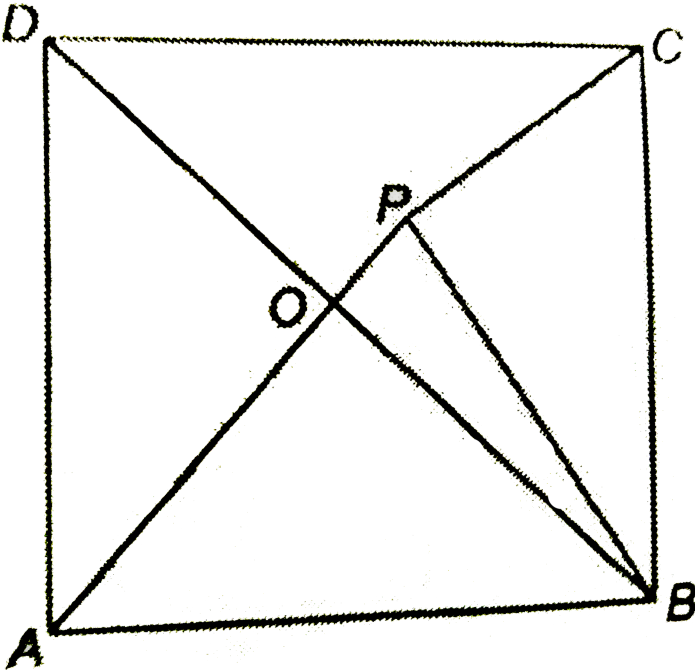
[▶ Watch Video Solution](#)



9. The give figure shows a square ABCD and an equilateral triangle

APB. Calculate :

- (1)  $\angle AOB$     (ii)  $\angle BPC$   
 (iii)  $\angle PCD$     (iv) reflex  $\angle APC$



- A. (i)  $75^\circ$     (ii)  $75^\circ$     (iii)  $15^\circ$     (iv)  $225^\circ$   
 B. (i)  $55^\circ$     (ii)  $65^\circ$     (iii)  $35^\circ$     (iv)  $215^\circ$   
 C. (i)  $65^\circ$     (ii)  $35^\circ$     (iii)  $45^\circ$     (iv)  $220^\circ$

D. (i)  $45^\circ$     (ii)  $65^\circ$     (ii)  $35^\circ$     (iv)  $125^\circ$

**Answer: A**

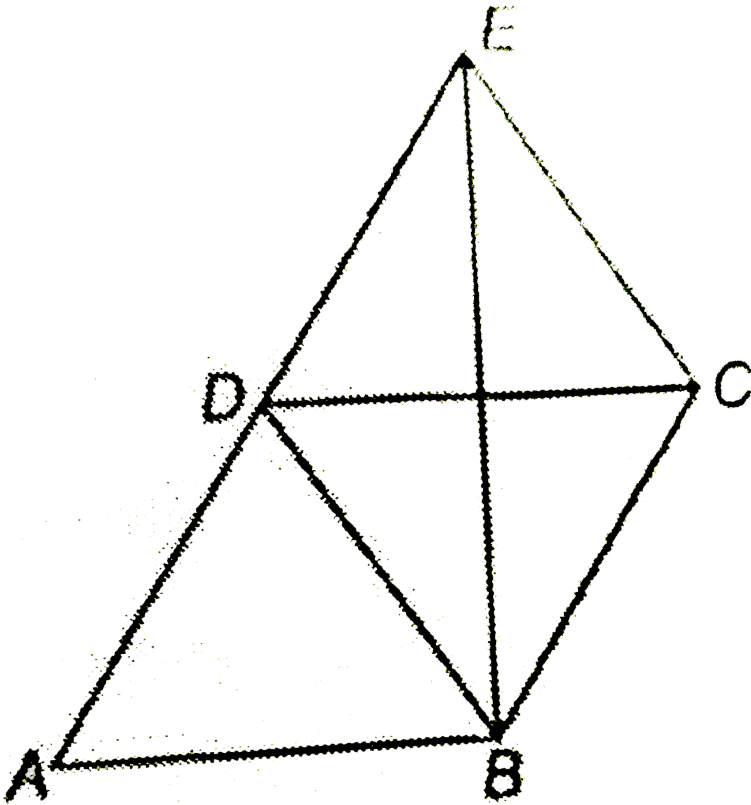


[Watch Video Solution](#)

**10.** In the given figure, ABCD is a rhombus with  $\angle A = 67^\circ$ . If DEC is an equilateral triangle, calculate

(i)  $\angle CBE$

(ii)  $\angle DBE$



A. (i)  $25.5^\circ$     (ii)  $29^\circ$

B. (i)  $24.5^\circ$     (ii)  $40^\circ$

C. (i)  $26.5^\circ$     (ii)  $30^\circ$

D. (i)  $28.5^\circ$     (ii)  $28^\circ$

**Answer: C**



**Watch Video Solution**

11. If the adjacent angles of a parallelogram are in the ratio  $\frac{1}{3} : \frac{1}{2}$ .

Find all the angles of parallelogram.

A.  $72^\circ$ ,  $108^\circ$ ,  $72^\circ$ ,  $108^\circ$

B.  $70^\circ$ ,  $110^\circ$ ,  $70^\circ$ ,  $110^\circ$

C.  $73^\circ$ ,  $107^\circ$ ,  $73^\circ$ ,  $107^\circ$

D.  $74^\circ$ ,  $106^\circ$ ,  $74^\circ$ ,  $106^\circ$

**Answer: A**



**Watch Video Solution**

12. Prove that the sum of two consecutive angles of a parallelogram is  $180^\circ$ .

 [Watch Video Solution](#)

13. One angle of a parallelogram is  $60^\circ$ . Find its remaining angles.

 [Watch Video Solution](#)

14. One diagonal of a parallelogram bisects its one of the angles. Show that it will also bisect the opposite angle.

 [Watch Video Solution](#)

15. The opposite angles of a parallelogram are  $(3x - 2)^\circ$  and  $(150 - x)^\circ$ . Find each angle of the parallelogram.

A.  $110^\circ, 70^\circ, 110^\circ, 70^\circ$

B.  $111^\circ, 69^\circ, 111^\circ, 69^\circ$

C.  $112^\circ, 68^\circ, 112^\circ, 68^\circ$

D.  $109^\circ, 71^\circ, 109^\circ, 71^\circ$

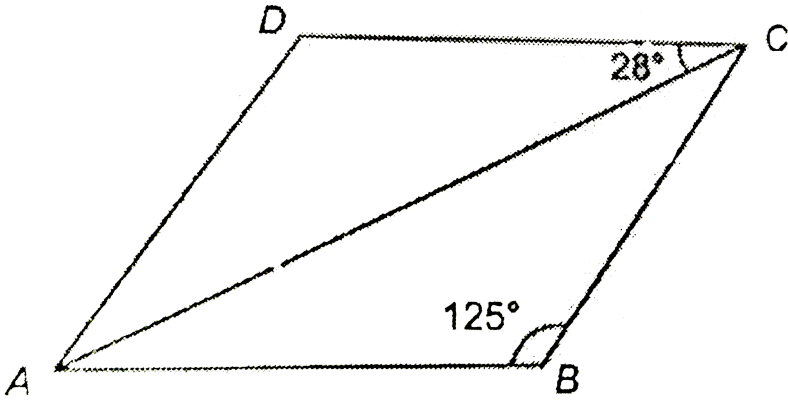
**Answer: C**



**Watch Video Solution**

**16.** In the adjoining figure, ABCD is a parallelogram. If  $\angle ABC = 125^\circ$ ,

$\angle ACD = 28^\circ$ , then find  $\angle DAC$ .



- A.  $25^\circ$
- B.  $26^\circ$
- C.  $27^\circ$
- D.  $28^\circ$

**Answer: C**



**Watch Video Solution**

17. In a parallelogram, one angle is twice of its consecutive angle.

Find all the angles of the parallelogram.



[Watch Video Solution](#)

18. In a parallelogram ABCD, AX and CY are the bisectors of  $\angle A$  and  $\angle C$  respectively. Prove that  $AX \parallel CY$ .



[Watch Video Solution](#)

19. In a parallelogram PQRS, PX and QY are the perpendiculars drawn from P and Q respectively to SR and SR produced. Prove that  $PX = QY$ .



[Watch Video Solution](#)



20. In a parallelogram ABCD, the bisector of  $\angle A$  bisects the line BC at point X. Prove that  $AD = 2AB$ .

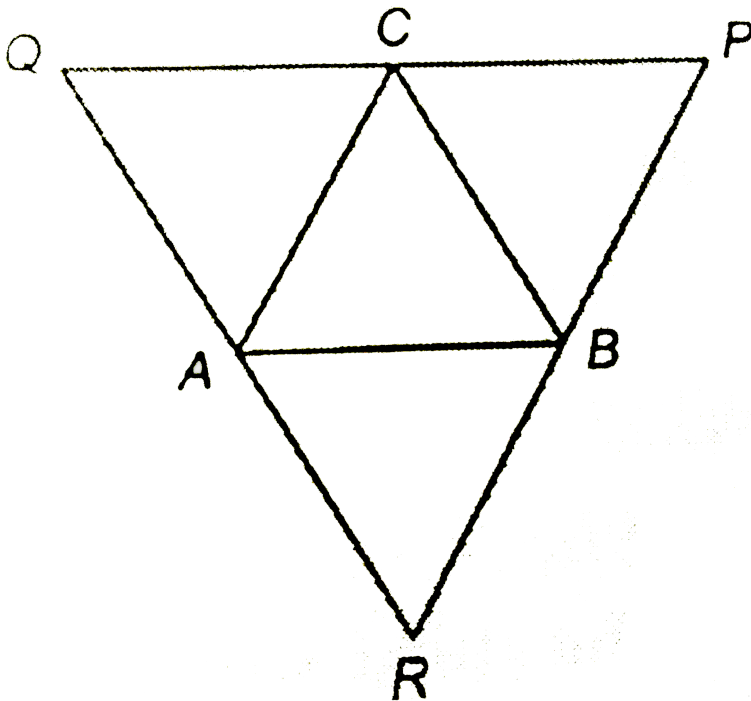
 [Watch Video Solution](#)

21. In a parallelogram ABCD,  $\angle BCD = 60^\circ$ . If the bisectors AP and BP of  $\angle A$  and  $\angle B$  respectively, meet the side CD at point P, then prove that  $CP = PD$ .

 [Watch Video Solution](#)

22. In the adjoining figure,  $\triangle PQR$  is formed by the sides PQ, QR and RP which are drawn parallel to sides AB, BC and CA respectively of  $\triangle ABC$ . Prove that

$$PQ + QR + RP + 2(AB + BC + CA).$$



[▶ Watch Video Solution](#)

23. X and Y are the mid-points of the opposite sides AB and DC of a parallelogram ABCD. Then  $\square AXC Y$  is a ?

A. Trapezium

B. Kite

C. Rhombus

D. Parallelogram

**Answer: D**

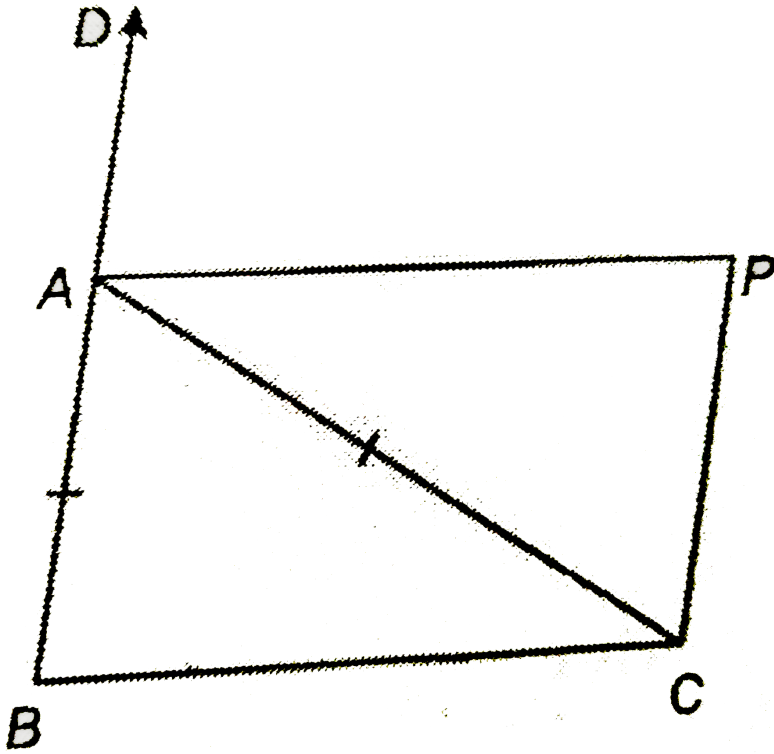
 [Watch Video Solution](#)

**24.** Two points X and Y lie on the diagonal BD of a parallelogram ABCD such that  $DX = BT$ . Prove that  $\square AXC Y$  is a parallelogram.

 [Watch Video Solution](#)

**25.** In the adjoining figure,  $\triangle ABC$  is an isosceles triangle in which  $AB = AC$ . Side CP is parallel to AB and AP is the bisector of exterior angle CAD of  $\triangle ABC$ . Prove that  $\angle PAC = \angle BCA$  and  $\square ABCP$

is a parallelogram.

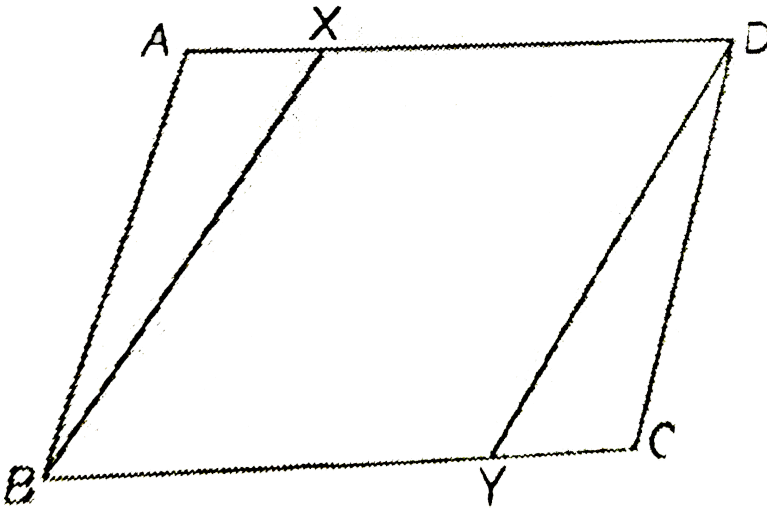


[▶ Watch Video Solution](#)

26. AB and CD are two parallel lines and a transversal 'l' intersects these lines at X and Y respectively. Prove that the bisectors of interior angles from a parallelogram whose each angle is  $90^\circ$ .

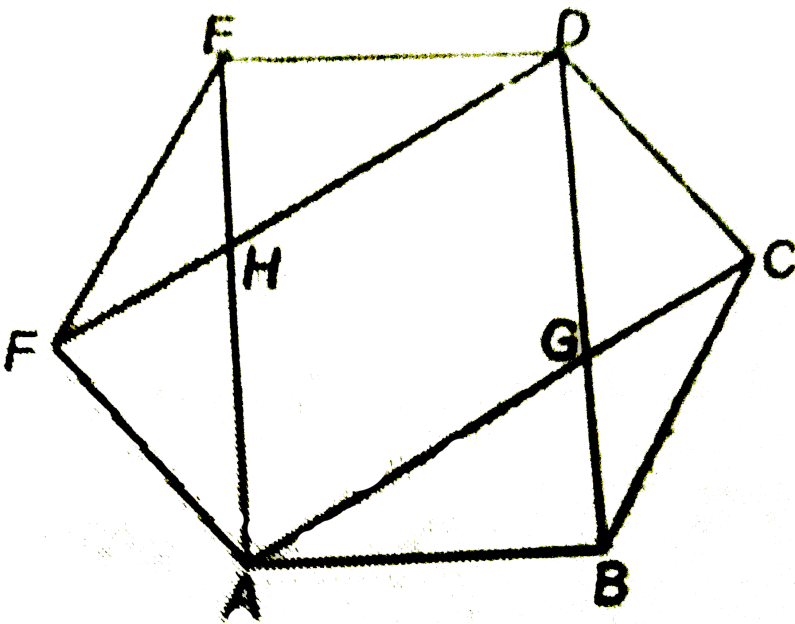
[▶ Watch Video Solution](#)

27. In the adjoining figure  $\square ABCD$  is a parallelogram. Points  $X$  and  $Y$  lie on the sides  $AD$  and  $BC$  respectively and  $AX = \frac{1}{4}AD$  and  $CY = \frac{1}{4}BC$ . Show that  $\square XBYD$  is a parallelogram.



[▶ Watch Video Solution](#)

28. In the adjoining figure,  $ABCDEF$  is a regular hexagon. Prove that  $\square ABDE$ ,  $\square ACDF$  and  $\square AGDH$  are parallelograms.



[▶ Watch Video Solution](#)

29. Two triangles  $\triangle ABC$  and  $\triangle DEF$  are given such that  $AB \parallel DE$ ,  $BC \parallel EF$  and  $AB = DE$ ,  $BC = EF$ . Show that  $AC \parallel DF$  and  $AC = DE$ .

[▶ Watch Video Solution](#)

1. The sides AB and AC are equal of an isosceles triangle ABC. D E and F are the mid-points of sides BC, CA and AB respectively. Prove that:

(i) Line segment AD is perpendicular to line segment EF.

(ii) Line segment AD bisects the line segment EF.

 [Watch Video Solution](#)

2. Show that the quadrilateral formed by joining the mid-points of the consecutive sides of a rhombus, is a rectangle.

 [Watch Video Solution](#)

3. E is the mid-point of the median AD of  $\triangle ABC$ . Line segment BE meets AC at point F when produce, prove that  $AF = \frac{1}{3}AC$ .



 [Watch Video Solution](#)

4. Show that the quadrilateral, formed by joining the mid-points of the sides of a square is also a square.

 [Watch Video Solution](#)

5. Show that, in a parallelogram ABCD, the internal and external bisectors of  $\angle A$  and  $\angle B$  form a rectangle.

 [Watch Video Solution](#)

6. Prove that the quadrilateral formed by joining the mid-points of the pairs of consecutive sides of a quadrilateral is a parallelogram.

 [Watch Video Solution](#)



7. In  $\triangle ABC$ ,  $\angle B = 90^\circ$ . If P is the mid-point of side AC, then

$$PA = PB =$$

A.  $AC$

B.  $3AC$

C.  $\frac{1}{2}AC$

D.  $2AC$

**Answer: C**



[Watch Video Solution](#)

8.  $\square PQRS$  is a reactangle. If A, B and C are the mid-points of PQ,

PS and QR respectively, then prove that

$$AB + AC = \frac{1}{2}(PR + SQ).$$



[Watch Video Solution](#)

9.  $P$ ,  $Q$  and  $R$  are, respectively, the mid-points of sides  $BC$ ,  $CA$  and  $AB$  of a triangle  $ABC$ ,  $PR$  and  $BQ$  meet at  $X$  and  $PQ$  meet at  $Y$ . Prove that  $XY = \frac{1}{4}BC$ .

 [Watch Video Solution](#)

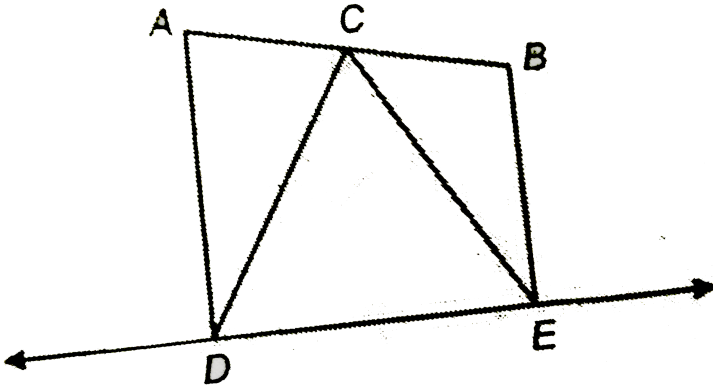
10. In  $\Delta PQR$ ,  $PQ = PR$  and  $S$  is the mid-point of  $PQ$ . A line drawn from  $S$  parallel to  $QR$ , intersects the line  $PR$  at  $T$ . Prove that  $PS = PT$ .

 [Watch Video Solution](#)

11. The points  $M$  and  $N$  divide the line segment  $AB$  of  $\Delta ABC$  in three equal parts. If  $MP \parallel NQ \parallel BC$  and points  $P$  and  $Q$  lie on line  $AC$ , then prove that  $P$  and  $Q$  trisect the line  $AC$ .

 [Watch Video Solution](#)

12. In the adjoining figure, two points A and B lie on the same side of a line 'l'. C is the mid-point of AB. If  $AD \perp l$  and  $BE \perp l$ , then prove that  $CD = CE$ .



[▶ Watch Video Solution](#)

13. AB and CD are the parallel sides of a trapezium. E is the mid-point of AD. A line through E and parallel to side AB meets the line BC at point F. Prove that F is the mid-point of BC.

[▶ Watch Video Solution](#)

14. Prove that a line drawn from the vertex of a triangle to its base is bisected by the line joining the mid points of the remaining two sides of the triangle.

 [Watch Video Solution](#)

15. In a parallelogram ABCD, E and F are the mid-points of sides BC and AD respectively. Show that the line segment BF and ED trisect the diagonal AC.

 [Watch Video Solution](#)

### Revision Exercise Very Short Answer Questions

1. Three angles of a quadrilateral are respectively  $100^\circ$ ,  $98^\circ$ ,  $92^\circ$ .  
Find the fourth angle.

A.  $50^\circ$

B.  $70^\circ$

C.  $60^\circ$

D.  $80^\circ$

**Answer: B**



[Watch Video Solution](#)

2. Find the other angles of a parallelogram if its one angle is  $60^\circ$



[Watch Video Solution](#)

3. Find the angles of the parallelogram ABCD if  $\angle C = \frac{2}{3}\angle D$ .

A.  $\angle A = \angle C = 72^\circ$ ,  $\angle B = \angle D = 108^\circ$

B.  $\angle A = \angle C = 70^\circ, \angle B = \angle D = 110^\circ$

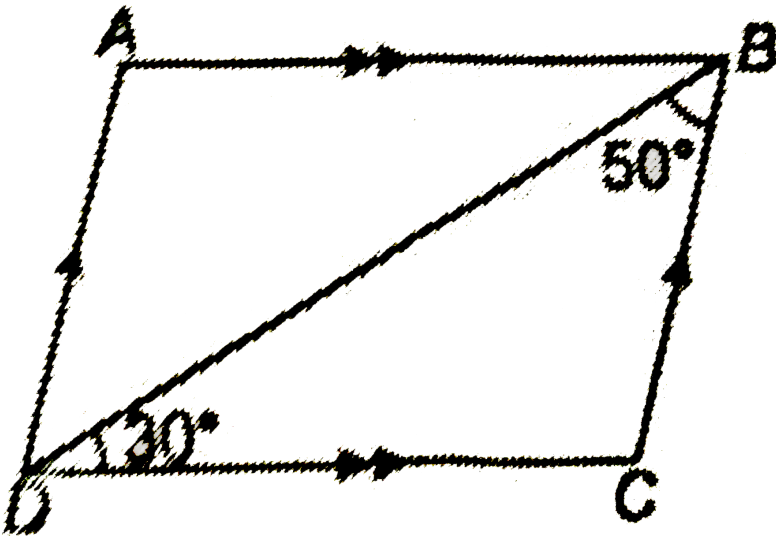
C.  $\angle A = \angle C = 69^\circ, \angle B = \angle D = 111^\circ$

D.  $\angle A = \angle C = 68^\circ, \angle B = \angle D = 112^\circ$

Answer: A

 Watch Video Solution

4. Find  $\angle A$  of the given figure.



A.  $\angle A = 100^\circ$

B.  $\angle A = 90^\circ$

C.  $\angle A = 70^\circ$

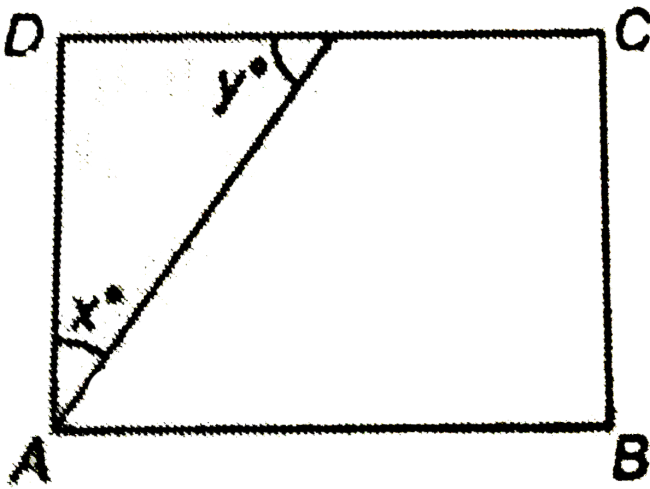
D.  $\angle A = 80^\circ$

**Answer: A**



**Watch Video Solution**

5. In the given figure, if ABCD is a rectangle and  $x : y = 2 : 7$  find  $x$  and  $y$ .



- A.  $10^\circ, 35^\circ$
- B.  $20^\circ, 90^\circ$
- C.  $15^\circ, 35^\circ$
- D.  $20^\circ, 70^\circ$

**Answer: D**



**Watch Video Solution**



6. In a  $\triangle ABC$ ,  $D$ ,  $E$  and  $F$  are respectively the mid-points of  $BC$ ,  $CA$  and  $AB$ . If the lengths of side  $AB$ ,  $BC$  and  $CA$  are 7 cm, 8 cm and 9 cm respectively, find the perimeter of  $\triangle DEF$ .

A. 13 cm

B. 10 cm

C. 12 cm

D. 11 cm

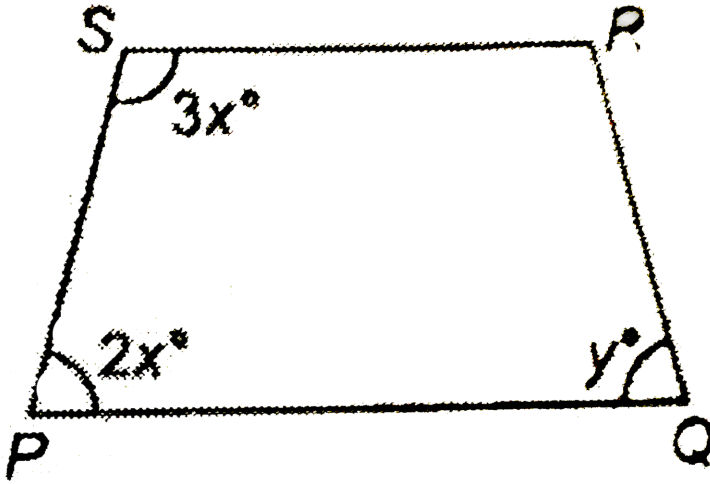
**Answer: C**



[Watch Video Solution](#)

7. If the bisectors of two adjacent angles  $A$  and  $B$  of a quadrilateral  $ABCD$  intersect at a point  $O$  such that  $\angle C + \angle D = k\angle AOB$ , then find the value of  $k$

8. In the given figure PQRS is an isosceles trapezium, find  $x$  and  $y$ .



A.  $x = 45^\circ$   $y = 63^\circ$

B.  $x = 50^\circ$   $y = 58^\circ$

C.  $x = 40^\circ$   $y = 68^\circ$

D.  $x = 36^\circ$   $y = 72^\circ$

Answer: D

9. In a rhombus ABCD if  $\angle ACB = 40^\circ$ , then find  $\angle ADC$ .

 Watch Video Solution

10. The diagonals of a parallelogram ABCD intersect at O. If  $\angle BOC = 90^\circ$  and  $\angle BDC = 50^\circ$ , find  $\angle OAB$ .

A.  $50^\circ$

B.  $30^\circ$

C.  $40^\circ$

D.  $60^\circ$

**Answer: C**

 Watch Video Solution

## Revision Exercise Short Answer Questions

1. In an isoscles trapezium, show that the opposite angles are supplementary.



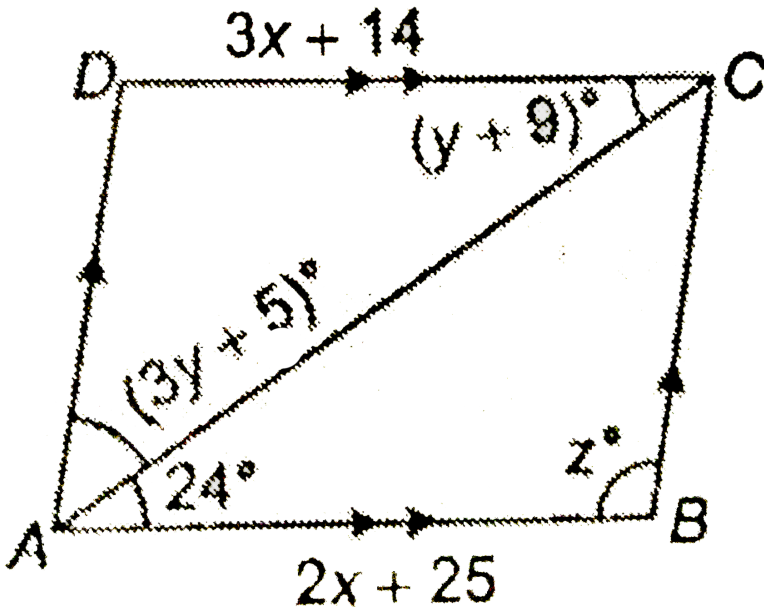
[Watch Video Solution](#)

2. In the given figure ABCD is a parallelogram.

$$AB = (2x + 25)cm, CD = (3x + 14)cm,$$

$$\angle B = z^\circ, \angle BAC = 24^\circ, \angle DAC = 3y + 5^\circ \text{ and } \angle DCA = y + 9^\circ,$$

find the values of  $x$ ,  $y$  and  $z$ .



A.  $x = 15, y = 11, z = 100^\circ$

B.  $x = 11, y = 15, z = 106^\circ$

C.  $x = 10, y = 12, z = 80^\circ$

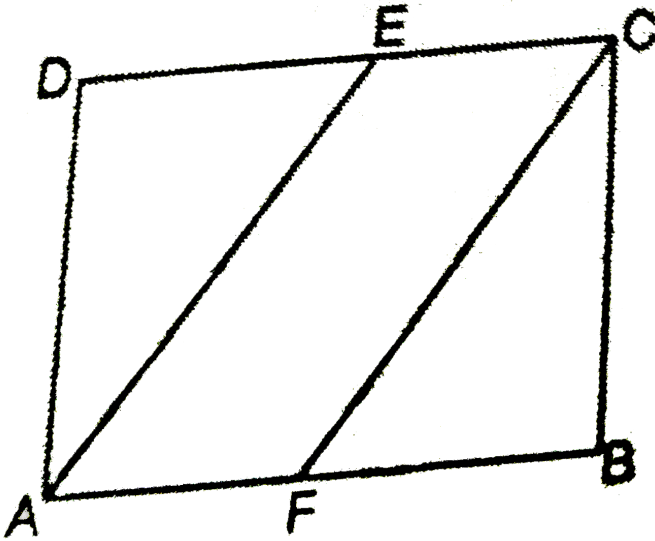
D. None

**Answer: B**



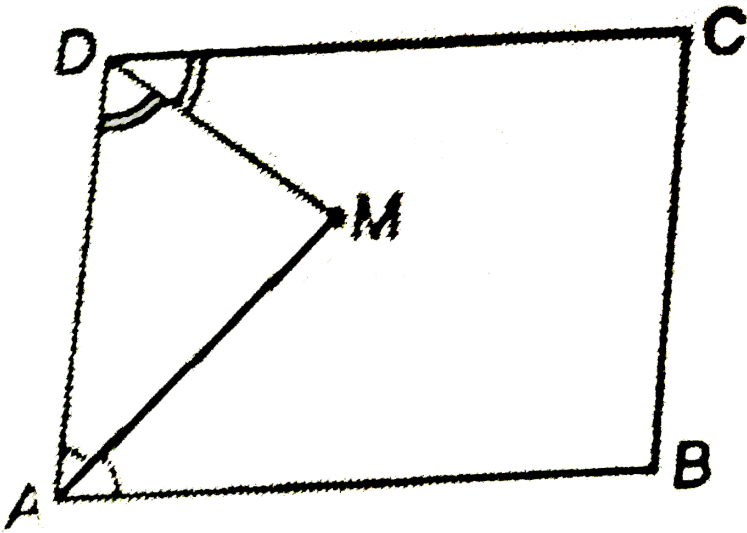
**Watch Video Solution**

3. ABCD is a parallelogram and AE and CF bisect  $\angle A$  and  $\angle C$  respectively. Prove that  $AE \parallel FC$ .



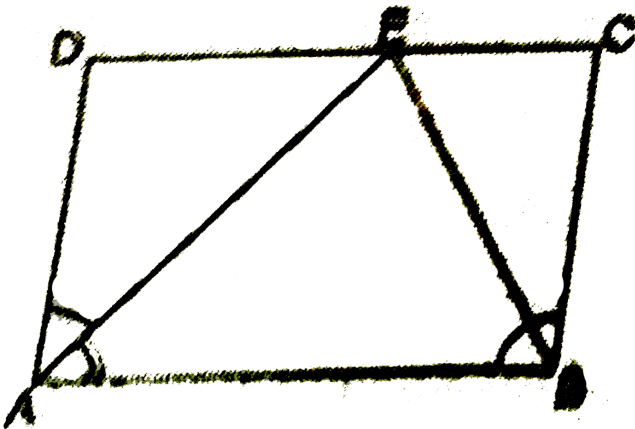
[▶ Watch Video Solution](#)

4. In the given figure, AM bisects angle A and DM bisects angle D of parallelogram ABCD. Prove that  $\angle AMD = 90^\circ$ .



[▶ Watch Video Solution](#)

5. In the given figure  $ABCD$  is a parallelogram. Prove that  $AB = 2BC$ .



 [Watch Video Solution](#)

6. E and F are points on diagonal AC of a parallelogram ABCD such that  $AE=CF$ . Show that BFDE is a parallelogram.

 [Watch Video Solution](#)

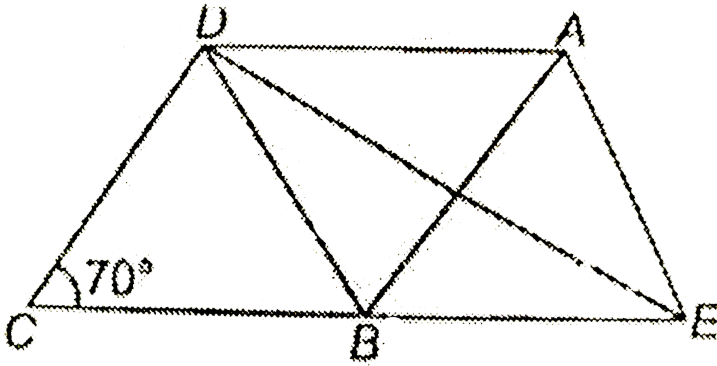
7. In a quadrilateral ABCD,  $AB= AD$  and  $CB = CD$ , prove that AC is perpendicular bisector of BD.

 [Watch Video Solution](#)

8. In the adjoining figure, ABCD is a rhombus and ABE is an equilateral triangle. If  $\angle BCD = 70^\circ$ , find



(a)  $\angle ADE$    (b)  $\angle BDE$    (c)  $\angle BED$



A. (a)  $20^\circ$  (b)  $40^\circ$  (c)  $30^\circ$

B. (a)  $25^\circ$  (b)  $30^\circ$  (c)  $35^\circ$

C. (a)  $30^\circ$  (b)  $45^\circ$  (c)  $15^\circ$

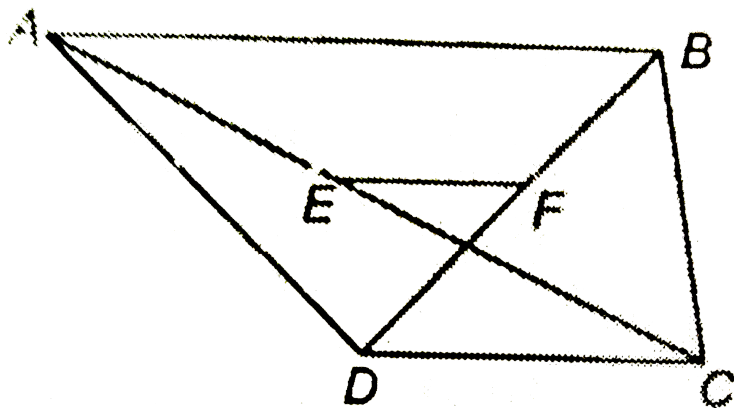
D. (a)  $40^\circ$  (b)  $30^\circ$  (c)  $20^\circ$

**Answer: B**



**Watch Video Solution**

9. In a trapezium ABCD, if E and F be the mid-points of diagonal AC and BD respectively. Prove that  $EF = \frac{1}{2}(AB - CD)$ .



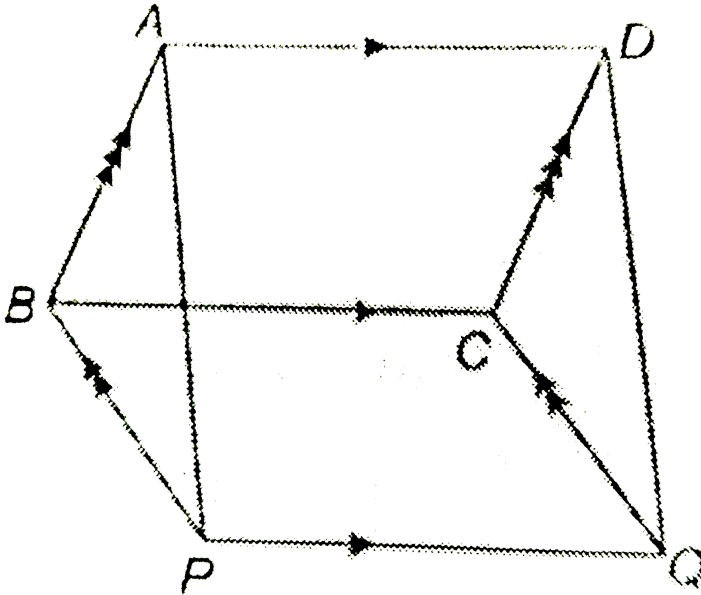
[▶ Watch Video Solution](#)

10. In a quadrilateral ABCD the line segment bisecting  $\angle C$  and  $\angle D$  meet at E. Prove that  $\angle A + \angle B = 2\angle CED$ .

[▶ Watch Video Solution](#)

1. In the adjoining figure, ABCD and PBCQ are parallelograms. Prove that

$$\triangle ABP \cong \triangle DCQ$$



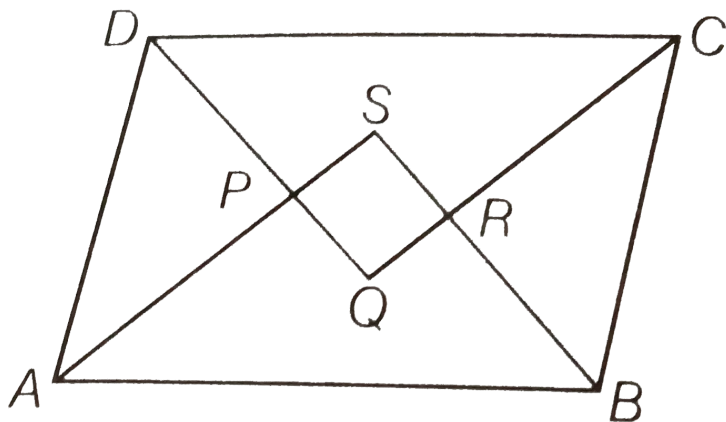
[▶ Watch Video Solution](#)

2. A transversal cuts two parallel lines at A and B. The two interior angles at A are bisected and so are the two interior angles at B, the

four bisectors from a quadrilateral ACBD, prove that ABCD is parallelogram.

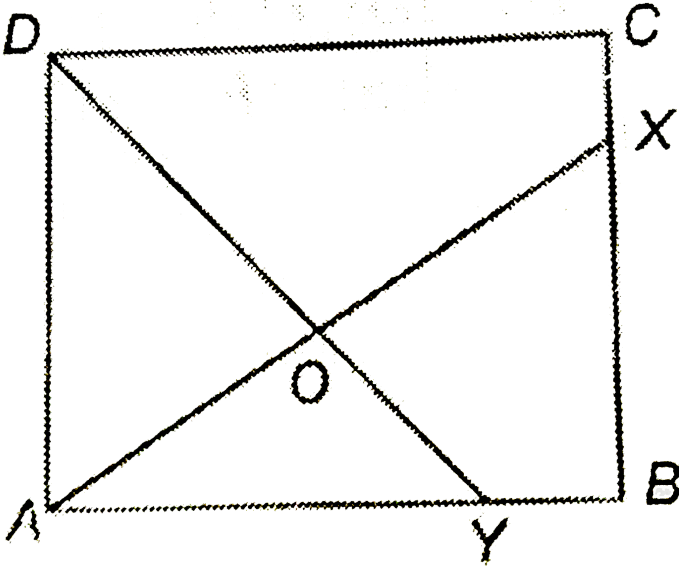
[▶ Watch Video Solution](#)

3. Prove that the quadrilateral formed by the bisectors of the angles of a parallelogram is a rectangle.



[▶ Watch Video Solution](#)

4. In a square ABCD, A is joined to a point X on BC and D is joined to a point Y on AB. If  $AX = DY$ , prove that AX is perpendicular to DY.



[Watch Video Solution](#)

5. ABCD is a rhombus. RABS is a straight line such that  $RA = AB = BS$ . Prove that RD and SC when produced meet at right angles.

[Watch Video Solution](#)

