# EXERCISE # 1

**Q.1** The sum of all the angles of a quadrilateral is
(A) 180° (B) 270°
(C) 360° (D) 400°

**Q.2** The three angles of a quadrilateral are 80°, 70° and 120°. The fourth angle is
(A) 110° (B) 100°
(C) 90° (D) 80°

**Q.3** The angles of a quadrilateral are in the ratio 3 : 4 : 5 : 6. The largest of these angles is
(A) 90° (B) 120°
(C) 150° (D) 102°

**Q.4** A quadrilateral having one and only one pair of parallel sides is called
(A) a parallelogram (B) a kite
(C) a rhombus (D) a trapezium

**Q.5** A quadrilateral whose opposite sides are parallel is called
(A) a rhombus (B) a kite
(C) a trapezium (D) a parallelogram

**Q.6** An isosceles trapezium has
(A) equal parallel sides
(B) equal nonparallel sides
(C) equal opposite sides
(D) none of these

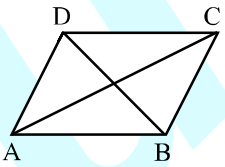
**Q.7** If the diagonals of a quadrilateral bisect each other at right angles, then this quadrilateral is
(A) a rectangle
(B) a rhombus
(C) a kite
(D) none of these

**Q.8** A square has
(A) all sides equal and diagonals unequal
(B) all sides equal and diagonals equal
(C) all sides unequal and diagonals equal
(D) none of these

**Q.9** A quadrilateral having two pairs of equal adjacent sides but unequal opposite sides, is called a
(A) trapezium (B) parallelogram
(C) kite (D) rectangle

**Q.10** What do you mean by a regular quadrilateral?
(A) A rectangle (B) A rhombus
(C) A square (D) A trapezium

**Q.11** In the adjacent figure, a quadrilateral has been shown.




Name :
(i) its diagonals,
(ii) two pairs of opposite sides,
(iii) two pairs of opposite angles,
(iv) two pairs of adjacent sides,
(v) two pairs of adjacent angles.

**Q.12** Two sides of a parallelogram are in the ratio 4 : 3. If its perimeter is 56 cm, find the lengths of its sides.

**Q.13** Name each of the following parallelograms.
(i) The diagonals are equal and the adjacent sides are unequal.
(ii) The diagonals are equal and the adjacent sides are equal.
(iii) The diagonals are unequal and the adjacent sides are equal.

**Q.14** Which of the following statements are true and which are false ?
(a) The diagonals of a parallelogram are equal.
(b) The diagonals of a rectangle are perpendicular to each other.
(c) The diagonals of a rhombus are equal.

**Q.15** Give reasons for the following :

(a) A square can be thought of as a special rectangle.

(b) A square can be thought of as a special rhombus.

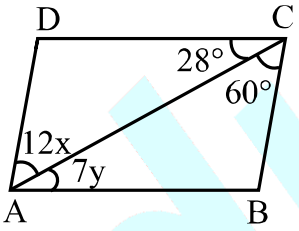
(c) A rectangle can be thought of as a special parallelogram.

(d) A square is also a parallelogram.

**Q.16** A figure is said to be regular if its sides are equal in length and angles are equal in measure. What do you mean by a regular quadrilateral?

**Q.17** In a parallelogram PQRS, $\angle S = 115°$, find the measurement of $\angle P$ and $\angle Q$.

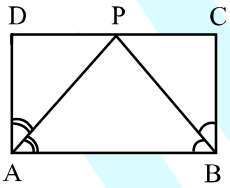
**Q.18** In the given figure ABCD is a parallelogram, find x and y.



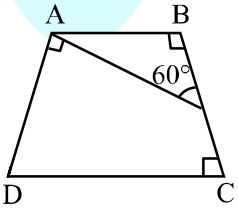

**Q.19** If BD is diagonal of a $\|^{gm}$ ABCD and $\angle C = 5a°$, $\angle CBD = 3a°$ and $\angle BDC = 2a°$ then find all four angles of $\|^{gm}$ ABCD.

**Q.20** In $\|^{gm}$ ABCD, diagonals AC & BD intersect at O and AC = 5.6 cm, BD = 6.8 cm, find OC & OD.

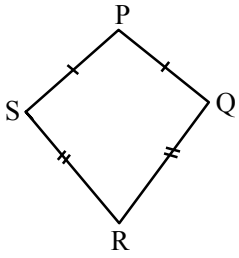
**Q.21** In the given figure ABCD is parallelogram and $\angle DAB = 60°$. If the bisectors AP & BP of angles A and B respectively, meet at P on CD, prove that P is mid point of CD




**Q.22** In the given figure find $\angle ADC$.




**Q.23** PQRS is a kite $\angle P = 70°$, $\angle S = 90.5°$ then find $\angle R$



# ANSWER KEY

## EXERCISE # 1

**1.** (C) **2.** (C) **3.** (B) **4.** (D) **5.** (D) **6.** (B) **7.** (B)

**8.** (B) **9.** (C) **10.** (C)

**11.** (i) AC, BD (ii) (AB, DC) and (AD, BC) (iii) ($\angle A$, $\angle C$), ($\angle B$, $\angle D$)

(iv) (AB, BC), (AD, DC) (v) ($\angle A$, $\angle B$), ($\angle B$, $\angle C$)

**12.** 16 cm, 12 cm **13.** (i) Rectangle (ii) Square (iii) Rhombus

**14.** (a) False (b) False (c) False

**15.** (a) A rectangle with sides equal becomes a square.

(b) A rhombus with each angle a right angle becomes a square.

(c) A parallelogram with each angle a right angle becomes a rectangle.

(d) The opposite sides of a square are parallel, so it is a parallelogram.

**16.** A regular quadrilateral is a square.

**17.** 65°, 115° **18.** $x = 5, y = 4$ **19.** $\angle A = \angle B = \angle C = \angle D = 90°$

**20.** OC = 2.8 cm, OD = 3.4 cm

**22.** 60° **23.** 109°

# EXERCISE # 2

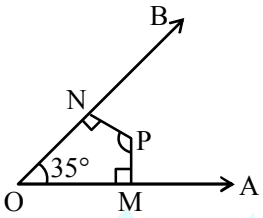
**Q.1** One angle of a quadrilateral is 78° and the other angles are equal. Find the measure of each of the equal angles.

**Q.2** The angles of a quadrilateral are 100°, 98° and 92°. Find the fourth angle.

**Q.3** In a quadrilateral ABCD, the angles A, B, C and D are in ratio 1 : 2 : 3 : 4. Find the measure of each angle of the quadrilateral.

**Q.4** The measure of two adjacent angles of a quadrilateral are 125° and 35°, the other two angles are equal. Find the measure of each of the angles.

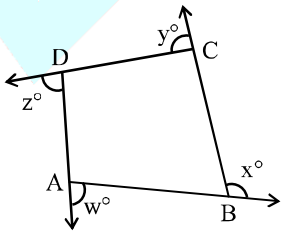
**Q.5** In the figure, P is a point in the interior of ∠AOB. PM ⊥ OA and PN ⊥ OB. If ∠AOB = 35°, what is the measure of ∠MPN?




**Q.6** Three angles of a quadrilateral are equal. The fourth angle is of measure 120°. What is the measure of each of its equal angles?

**Q.7** Two angles of a quadrilateral are 100° and 80°. If one of the other two is double the other, find their measures.

**Q.8** The sides of a quadrilateral are produced in order. The exterior angles marked as w°, x°, y° and z°, are in the ratio 5 : 6 : 3 : 4. Find their measures.




**Q.9** Write true or false for the following statements.

(a) In a convex quadrilateral, there is at least one angle which is less than 180°.

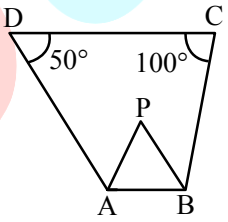
(b) A quadrilateral may have four acute angles.

(c) A quadrilateral may have four obtuse angles.

(d) At least one angle of a concave quadrilateral is more than 180°.

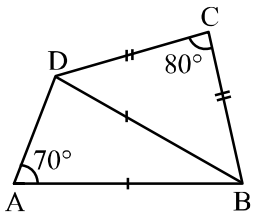
(e) A line segment joining two points in the interior of a quadrilateral lies entirely within the interior of the quadrilateral.

**Q.10** In figure, the bisectors of ∠A and ∠B meet at P. If ∠C = 100°, ∠D = 50°, find ∠APB.

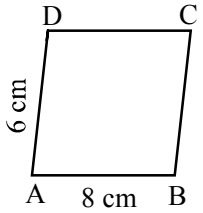



**Q.11** If three equal angles of a quadrilateral measure 75°, find the fourth angle.

**Q.12** Find the angles of the quadrilateral ABCD.

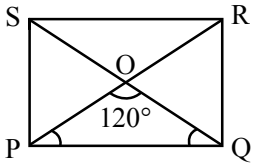



**Q.13** Find the perimeter of a parallelogram, if its two adjacent sides measure 8 cm and 6 cm.

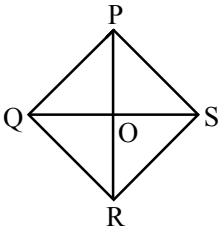


**Q.14** Check if the following figure forms a parallelogram, where AB = 5.5 cm, BC = 8 cm, ∠B = ∠D = 45°, ∠C = ∠A = 145°.

**Q.15** PQRS is a rectangle. If ∠POQ = 120°, find the angles of ΔPOQ.




**Q.16** The diagonals of a rhombus are 6 cm and 8 cm respectively. Find the perimeter of the rhombus.




**Q.17** Check if ABCD is a parallelogram given

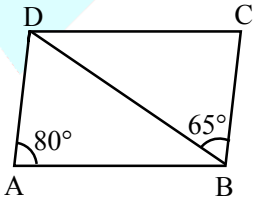
(a) AB = 4.5 cm, BC = 6 cm, AD = 6 cm, DC = 5 cm, ∠A = 50°, ∠B = 130°

(b) ∠B = 90°, ∠A = 90°, DC = AB = 7 cm, BC = 7 cm, AD = 7 cm

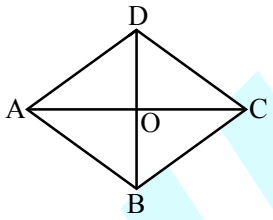
**Q.18** Find the perimeter of a rectangle with sides 6 cm and 7.5 cm.

**Q.19** The diagonals of a rectangle intersect at O. If ∠BOC = 75°, find the angles of the triangle BOC.

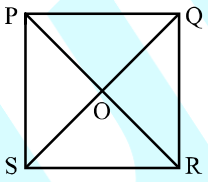
**Q.20** If ABCD is a parallelogram and ∠A = 80° and ∠CBD = 65°, find the angles of the parallelogram and ΔABD.




**Q.21** ABCD is a rhombus. If AB = 10 cm, BD = 16 cm, find AC.

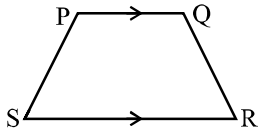



**Q.22** PQRS is a square. If PO = 4.5 cm, find PR and QS.

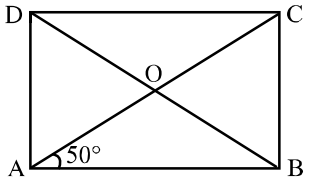



**Q.23** ABCD is a rectangle. Diagonal AC divides ∠C in the ratio 2 : 3. Find ∠ACD and ∠ACB.

**Q.24** PQRS is a trapezium in which PQ || SR. If ∠P = 100° and ∠Q = 110°, find ∠S and ∠R.




**Q.25** ABCD is a rectangle. If ∠OAB = 50°, find ∠AOB.




**Q.26** Find the perimeter of a rhombus whose diagonal are 5 cm and 12 cm.

**Q.27** The perimeter of a rhombus is 40 cm. If one diagonal is 16 cm, find the other diagonal.

**Q.28** ABCD is a quadrilateral with some special properties. So identify ABCD according to the following conditions (each part is separate question).

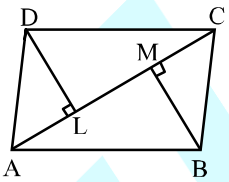
(a) AB = CD and BC = AD.
(b) AB || CD.
(c) Diagonals AC and BD bisect each other.
(d) AB = CD, AD = BC, ∠A = 90°.
(e) AB = BC = CD = AD.
(f) ∠A = ∠C and ∠B = ∠D.
(g) AB = BC = CD = AD, ∠A = 90°.
(h) Diagonals AC and BD bisect at 90°.
(i) Diagonals AC and BD bisect and are equal.
(j) Diagonals AC and BD bisect at 90° and are equal.

**Q.29** ABCD is a square with one diagonal of length 12 cm. What is the length of other diagonal ?

**Q.30** ABCD is a rhombus with diagonals 16 and 12 cm. Find the perimeter of this rhombus.

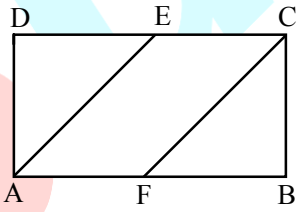
**Q.31** Given a parallelogram ABCD, with DL ⊥ AC and BM ⊥ AC. Prove that

(a) AD = BC (b) ∠DAC = ∠ACB
(c) ΔADL ≅ ΔBCM (d) DL = BM




**Q.32** ABCD is a rectangle with AE || CF prove with reasons, that

(a) ∠DEA = ∠CFB (b) ΔADE ≅ ΔBFC
(c) AE = CF




# ANSWER KEY

## EXERCISE # 2

**1.** 94° **2.** 70° **3.** 36°, 72°, 108°, 144° **4.** 100°
**5.** 145° **6.** 80° **7.** 60°, 120° **8.** 100°, 120°, 60°, 80°
**9.** (a) F (b) F (c) F (d) T (e) T **10.** 75° **11.** 135°
**12.** 120°, 90° **13.** 28 cm **14.** BC ∦ AD **15.** 30°
**16.** 20 cm **17.** (a) No (b) Yes **18.** 27 cm
**19.** 52.5° **20.** ∠ADB = 65°, ∠ABD = 35°, ∠C = 80° **21.** 12 cm
**22.** 9 cm, 9 cm **23.** 36°, 54° **24.** 80°, 70°
**25.** 80° **26.** 26 cm **27.** 12 cm
**28.** (a) Parallelogram (b) trapezium (c) parallelogram (d) rectangle (e) rhombus (f) parallelogram (g) square (h) kite (i) rectangle (j) square
**29.** 12 cm **30.** 40 cm