

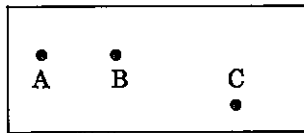
Basic Geometrical Ideas

Understanding the Lesson

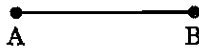
- Introduction to Geometrical shapes
- Point, line and line segment
- Difference between line and ray
- Intersecting lines and parallel lines
- Curve: Simple curve, open curve and closed curve
- Polygon and its elements: Sides, vertices and diagonals
- Angles: Interior and exterior region of an angle
- Quadrilaterals
- Circles: Centre, radius, diameter and the circumference, chord sector, arc, minor and major segments
- Semicircles

Conceptual Facts

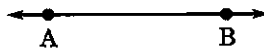
- Basic Geometrical Elements are points, lines and planes.
- Point determines a location. It does not have length, breadth and thickness. It is usually denoted by a capital letter.



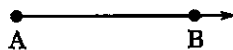
- Line segment is the shortest distance between two points. Line segment joining points A and B is denoted by \overline{AB} . \overline{AB} and \overline{BA} denote the same line segment.



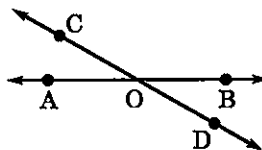
- When a line segment is extended on both sides infinitely we get a line and it is denoted by \overleftrightarrow{AB} .



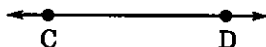
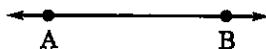
- A ray is a portion of line starting at a point and extending in one direction endlessly. It is denoted by \overrightarrow{AB} .



- Two distinct lines which meet at a point are called intersecting lines.



- Two distinct lines which do not meet at any point, are called parallel lines and denoted by \parallel i.e., $\overline{AB} \parallel \overline{CD}$.

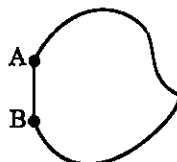


- Any drawing (straight or non-straight) drawn without lifting the pencil is called a **curve**.



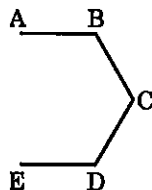
Simple curve

- Simple curve does not intersect itself.
- If the end points of a simple curve are joined, then it is called as **closed curve**.



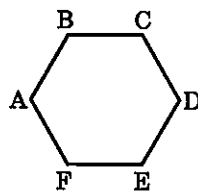
Closed curve

- If the end points of a curve are not joined, then it is called as **open curve**.

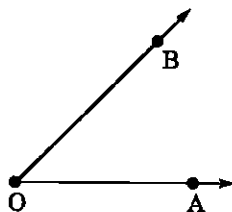


Open curve

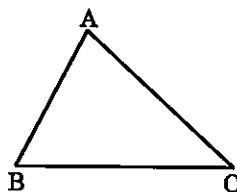
- Polygon is a simple closed curve made up of line segments.



- An angle is made up of two rays starting from a common end point. It is read as $\angle BOA$ or $\angle AOB$.



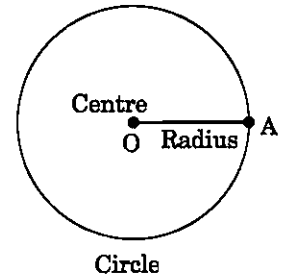
- Angle has three regions: On the angle, the interior of the angle and the exterior of the angle.
- Triangle is a polygon of three sides denoted by $\triangle ABC$.



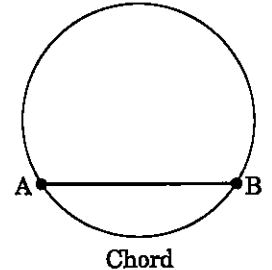
- Quadrilateral is polygon of four sides.



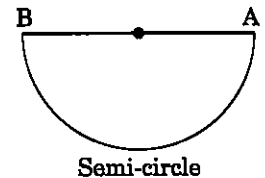
- Circle is a path of a point moving at the same distance from a fixed point known as centre and the distance between the fixed point and the moving point is called **radius**.



- Chord of a circle is a line segment obtained by joining any two points on the circle. It divides the circle into two segments, minor segment and major segment.

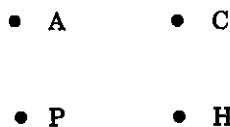


- Diameter is the longest chord of a circle which passes through the centre and divides the circle into two semi-circles.



TRY THESE (PAGE 70)

- Q1. With a sharp tip of the pencil, mark four points on a paper and name them by the letters A, C, P, H. Try to name these points in different ways. One such way could be this



Sol. The given way to mark four points is



We can name in different ways as:

(i) P • •S (ii) L • •M

Q • •R N • •O

(iii) X • •Y

Z • •W

- Q2. A star in the sky also gives us an idea of a point. Identify at least five such situations in your daily life.

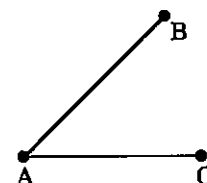
Sol. The required five situations are: tip of needle, tip of pencil, tip of pen, corner of a table and corner of blackboard.

TRY THESE (PAGE 71)

- Q1. Name the line segments in the figure given below. Is A, the end point of each line segment?

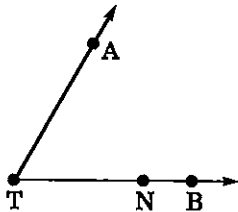
Sol. The names of the line segments in the figure given below are \overline{AB} or \overline{BA} and \overline{AC} or \overline{CA} .

Yes, A is the end point of each of the segments.



TRY THESE (PAGE 74)

Q1. Name the rays given in the figure



Sol. The names of the rays given in the figure are:

 \overrightarrow{TB} and \overrightarrow{TA} .

Q2. Is T a starting point of each of these rays?

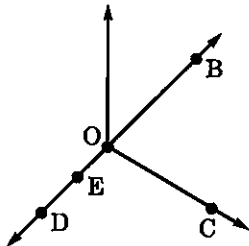
Sol. Yes, T is the starting point of each of these rays.

EXERCISE 4.1

Q1. Use the figure to name:

- Five points
- A line
- Four rays
- Five line segments

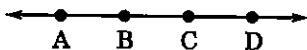
Sol. (a) Five points are: O, B, C, E and D

(b) Name of the line is \overleftrightarrow{DB} or \overleftrightarrow{BD} .(c) Four rays are: \overrightarrow{OC} , \overrightarrow{OB} , \overrightarrow{OE} and \overrightarrow{OD}

(d) Five line segments are:

 \overline{OE} , \overline{ED} , \overline{OD} , \overline{OB} and \overline{EB} .

Q2. Name the line given in all possible (twelve) ways, choosing only two letters at a time from the four given.



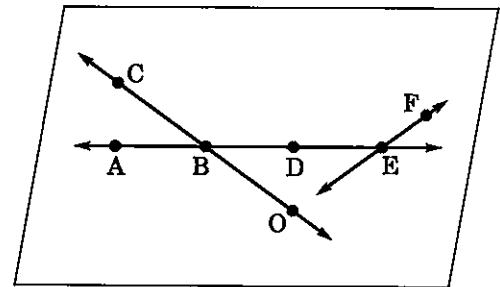
Sol. The given lines can be named as follows:



- | | | |
|---------------------------------|----------------------------------|---------------------------------|
| (i) \overleftrightarrow{AB} | (ii) \overleftrightarrow{AC} | (iii) \overleftrightarrow{AD} |
| (iv) \overleftrightarrow{BC} | (v) \overleftrightarrow{BD} | (vi) \overleftrightarrow{CD} |
| (vii) \overleftrightarrow{BA} | (viii) \overleftrightarrow{CA} | (ix) \overleftrightarrow{DA} |
| (x) \overleftrightarrow{CB} | (xi) \overleftrightarrow{DB} | (xii) \overleftrightarrow{DC} |

Q3. Use the figure to name:

- Line containing point E.
- Line passing through A.
- Line on which O lies.
- Two pairs of intersecting lines.

Sol. (a) \overleftrightarrow{EF} (b) \overleftrightarrow{AE} (c) \overleftrightarrow{BC} or \overleftrightarrow{BO} (d) \overleftrightarrow{CO} and \overleftrightarrow{AE} or \overleftrightarrow{AE} and \overleftrightarrow{EF} .

Q4. How many lines can pass through (a) one given point? (b) two given points?


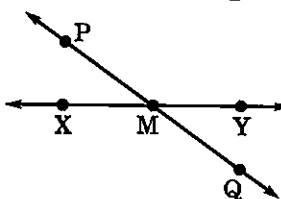
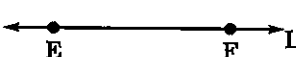
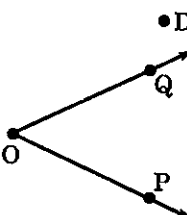
Sol. (a) Infinitely many lines can pass through a given point.

(b) Only one line can pass through two given points.

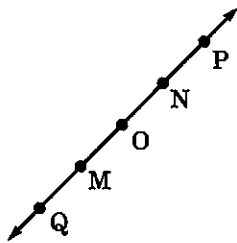
Q5. Draw a rough figure and label suitably in each of the following cases:

(a) Point P lies on \overleftrightarrow{AB} .(b) \overleftrightarrow{XY} and \overleftrightarrow{PQ} intersect at M.

(c) Line L contains E and F but not D.

(d) \overleftrightarrow{OP} and \overleftrightarrow{OQ} meet at O.Sol. (a) (b) (c) (d) 

Q6. Consider the following figure of line \overleftrightarrow{MN} . Say whether following statements are true or false in context of the given figure.



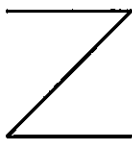
- (a) Q, M, O, N, P are points on the line \overleftrightarrow{MN} .
 (b) M, O, N are points on a line segment \overline{MN} .
 (c) M and N are end points of line segment \overline{MN} .

- (d) O and N are end points of line segment \overline{OP} .
 (e) M is one of the end points of line segment \overline{QO} .
 (f) M is point on ray \overrightarrow{OP} .
 (g) Ray \overrightarrow{OP} is different from ray \overrightarrow{QP} .
 (h) Ray \overrightarrow{OP} is same as ray \overrightarrow{OM} .
 (i) Ray \overrightarrow{OM} is not opposite to ray \overrightarrow{OP} .
 (j) O is not an initial point of \overrightarrow{OP} .
 (k) N is the initial point of \overline{NP} and \overline{NM} .

- Sol. (a) True (b) True (c) True (d) False
 (e) False (f) False (g) True (h) False
 (i) False (j) False (k) True

EXERCISE 4.2

Q1. Classify the following curves as (i) open or (ii) closed.



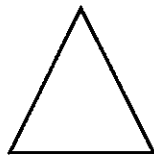
(a)



(b)



(c)

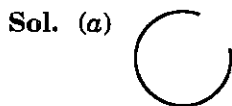


(d)

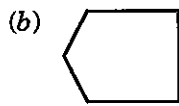
- Sol. (a) Open curve (b) Closed curve
 (c) Open curve (d) Closed curve

Q2. Draw rough diagrams to illustrate the following:

- (a) Open curve (b) Closed curve



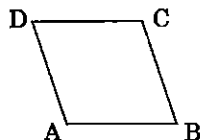
Open curve



Closed curve

Q3. Draw any polygon and shade its interior.

Sol. ABCD is the required polygon whose interior region is shaded.



Q4. Consider the given figure and answer the questions.

- (a) Is it a curve?
 (b) Is it closed?



- Sol. (a) Yes, it is a curve.
 (b) Yes, it is closed curve.

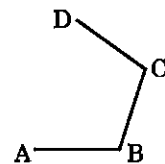
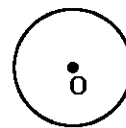
Q5. Illustrate, if possible, each one of the following with a rough diagram:

- (a) A closed curve that is not a polygon.
 (b) An open curve made up entirely of line segments.
 (c) A polygon with two sides.

Sol. (a) Required closed curve is a circle.

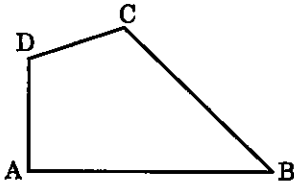
(b) ABCD is an open curve made up of the line segments \overline{AB} , \overline{BC} and \overline{CD} .

(c) A polygon with two sides is not possible.



EXERCISE 4.3

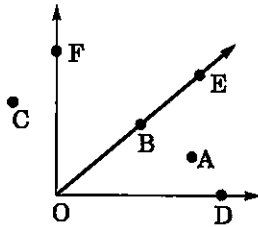
Q1. Name the angles in the given figure.



Sol. The angles are:

- (i) $\angle A$ or $\angle DAB$ (ii) $\angle B$ or $\angle CBA$
 (iii) $\angle C$ or $\angle DCB$ (iv) $\angle D$ or $\angle ADC$.

Q2. In the given diagram, name the point(s):



- (a) In the interior of $\angle DOE$
 (b) In the exterior of $\angle EOF$
 (c) On $\angle EOF$

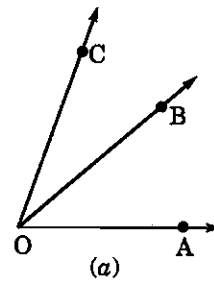
Sol. (a) A is the point in the interior $\angle DOE$.

- (b) C is the point in the exterior $\angle EOF$.
 (c) B is the point on $\angle EOF$.

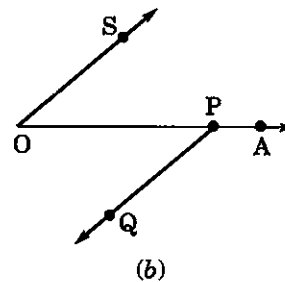
Q3. Draw rough diagrams of two angles such that they have

- (a) one point in common.
 (b) two points in common.
 (c) three points in common.
 (d) four points in common.
 (e) One ray in common.

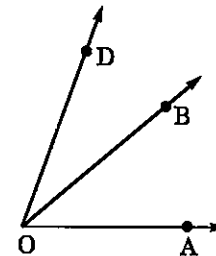
Sol. (a) In figure (a), O is the common point of $\angle AOB$ and $\angle COB$.



(b) In figure (b), O and P are the common points in $\angle SOA$ and $\angle OPQ$.



- (c) Such a diagram is not possible.
 (d) Such a diagram is not possible.

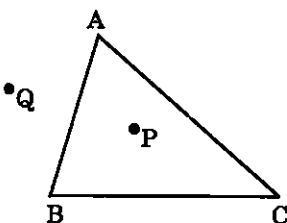


(e) \overline{OB} is the common ray of $\angle AOB$ and $\angle DOB$.

EXERCISE 4.4

Q1. Draw a rough sketch of a triangle ABC. Mark a point P in its interior and a point Q in its exterior. Is the point A in its exterior or in its interior?

Sol. Triangle ABC is the given triangle.



P is in the interior of $\triangle ABC$.

Q is in the exterior of $\triangle ABC$.

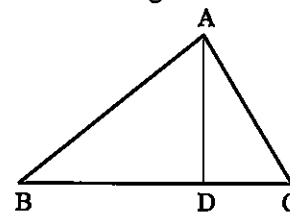
A is neither in the exterior nor in the interior.

Q2. (a) Identify three triangles in the figure.

(b) Write the names of seven angles.

(c) Write the names of six line segments.

(d) Which two triangles have $\angle B$ as common?



Sol. (a) Three triangles are: $\triangle ABC$, $\triangle ABD$ and $\triangle ADC$.

- (b) (i) $\angle ABC$ (ii) $\angle ADB$ (iii) $\angle BAD$
 (iv) $\angle ADC$ (v) $\angle ACD$
 (vi) $\angle DAC$ (vii) $\angle BAC$.

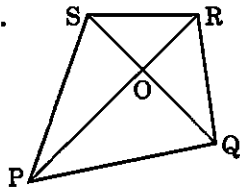
(c) \overline{AB} , \overline{BD} , \overline{AD} , \overline{AC} , \overline{DC} , \overline{BC}

(d) $\triangle ABC$ and $\triangle ABD$ have $\angle B$ as common.

EXERCISE 4.5

Q1. Draw a rough sketch of a quadrilateral PQRS. Draw its diagonals. Name them. Is the meeting point of the diagonals in the interior or exterior of the quadrilateral?

Sol.



- (i) We have a quadrilateral PQRS.
 (ii) PR and QS are its two diagonals.
 (iii) O is the meeting point of the diagonals PR and QS which is in the interior of the quadrilateral.

Q2. Draw a rough sketch of a quadrilateral KLMN. State:

- (a) two pairs of opposite sides
 (b) two pairs of opposite angles

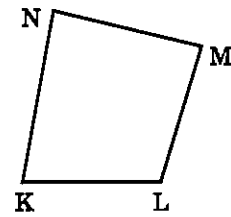
(c) two pairs of adjacent sides

(d) two pairs of adjacent angles.

Sol. KLMN is the given quadrilateral.

(a) \overline{KL} , \overline{NM} and \overline{KN} , \overline{LM} are the pairs of opposite sides.

(b) $\angle K$ and $\angle M$, $\angle L$ and $\angle N$ are the pairs of opposite angles.



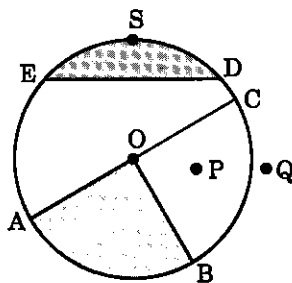
(c) \overline{KL} and \overline{KN} , \overline{NM} and \overline{ML} are the pairs of adjacent sides.

(d) $\angle K$ and $\angle L$, $\angle N$ and $\angle M$ are the pairs of adjacent angles.

EXERCISE 4.6

Q1. From the figure, identify:

- (a) the centre of circle
 (b) three radii
 (c) a diameter
 (d) a chord
 (e) two points in the interior
 (f) a point in the exterior
 (g) a sector
 (h) a segment.



Sol. In the given figure,

- (a) O is the centre of the circle.
 (b) Three radii of the given circle are \overline{OA} , \overline{OB} and \overline{OC} .
 (c) \overline{AC} is a diameter of the circle.
 (d) \overline{ED} is a chord of the circle.
 (e) O and P are in the interior of the circle.
 (f) Q is a point in the exterior of the circle.
 (g) OBA is a sector of the circle.
 (h) EDSE, the shaded region is a segment of the circle.

Q2. (a) Is every diameter of a circle also a chord?

(b) Is every chord of a circle also a diameter?

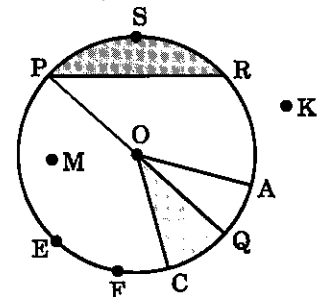
Sol. (a) Yes, every diameter is the longest chord of a circle.

(b) No, every chord is not diameter of a circle.

Q3. Draw any circle and mark

- (a) its centre (b) a radius
 (c) a diameter (d) a sector
 (e) a segment
 (f) a point in its interior
 (g) a point in its exterior
 (h) an arc.

Sol. In the given circle,



(a) O is the centre.

(b) \overline{OA} is a radius.

- (c) \overline{PQ} is a diameter.
 (d) OQC is a sector (shaded part)
 (e) PSR (shaded part) in the segment.
 (f) M is in the interior of the circle.
 (g) K is in the exterior of the circle.
 (h) \widehat{EF} is an arc of the circle.

Q4. Say 'true' or 'false'.

- (a) Two diameters of a circle will necessarily intersect.
 (b) The centre of a circle is always in its interior.


Sol. (a) True (b) True


Learning More Q & A

I. VERY SHORT ANSWER (VSA) QUESTIONS

Q1. Draw a rough sketch of:

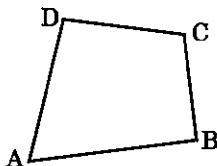
- (a) open curve (b) closed curve

Sol. (a)  is the open curve

(b)  is the closed curve

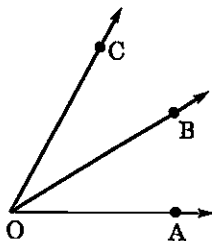
Q2. Draw a rough sketch of closed curve made up of line segments.

Sol. Required curve is $ABCD$ closed with the line segments \overline{AB} , \overline{BC} , \overline{CD} and \overline{DA} .



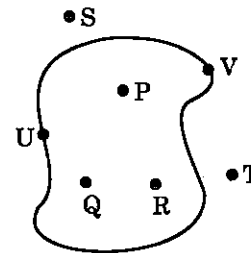
Q3. Draw two different angles having common point and a common arm.

Sol. $\angle AOB$ and $\angle COB$ are two different angles with common point O and common arm \overline{OB} .



Q4. Identify the points which are:

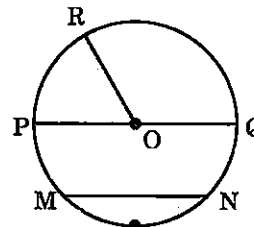
- (i) in the interior
 (ii) in the exterior
 (iii) on the closed curve in the given figure.



- Sol. (i) Points P , Q and R are in the interior of the closed curve.
 (ii) points S and T are in the exterior of the closed curve.
 (iii) U and V are on the closed curve.

Q5. Identify the following in the given figure:

- (a) Sector (b) Chord
 (c) Diameter (d) Segment.



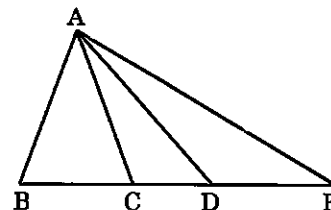
Sol. (a) OPR (shaded) is the sector of the circle.

(b) \overline{MN} is the chord.

(c) \overline{PQ} is the diameter.

(d) MXN (shaded) is the segment.

Q6. In the given figure, name all the possible triangles.

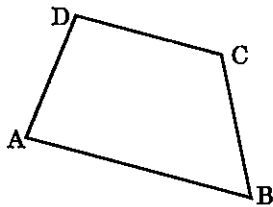


Sol. Possible triangles are:

- (i) $\triangle ABC$ (ii) $\triangle ABD$ (iii) $\triangle ABE$
 (iv) $\triangle ACD$ (v) $\triangle ACE$ (vi) $\triangle ADE$

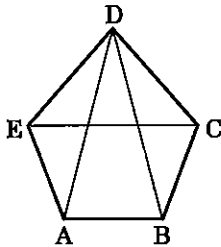
Q7. Name all the angles in the given figure.

Sol. In the given figure, the names of all the angles are:



- (i) $\angle ABC$ (ii) $\angle BCD$
 (iii) $\angle CDA$ (iv) $\angle DAB$

Q8. In the given figure, name all the line segments:

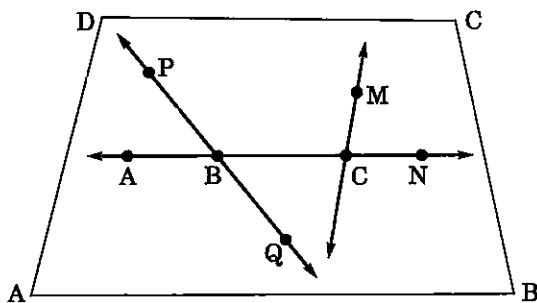


Sol. In the given figure, the name of the line segments are:

\overline{AB} , \overline{BC} , \overline{CD} , \overline{DE} , \overline{EA} , \overline{DA} , \overline{DB} and \overline{EC} .

II. SHORT ANSWER (SA) QUESTIONS

Q9. Using the given figure, name the following:



- (a) Line containing point M.
 (b) Line passing through four points.
 (c) Line passing through three points.
 (d) Two pairs of intersecting lines.

Sol. (a) \overline{MC} is the line containing the point M.

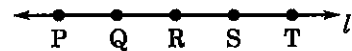
(b) \overline{AN} is the line passing through four points A, B, C and N.

(c) \overline{PQ} is the line passing through three points P, B and Q.

(d) Pairs for intersecting lines are

- (i) \overline{AN} and \overline{PQ} (ii) \overline{AN} and \overline{MC}

Q10. On the given line, some points are given, write down the names of all segments.



Sol. Segments are:

\overline{PQ} , \overline{PR} , \overline{PS} , \overline{PT} , \overline{QR} , \overline{QS} , \overline{QT} , \overline{RS} ,
 \overline{RT} , \overline{ST} .

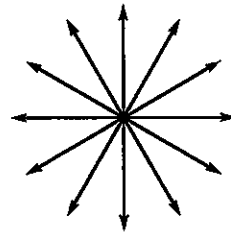
Q11. How many lines can pass through

- (i) one given point?
 (ii) two given points?
 (iii) three non-collinear points

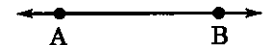
Sol. (i) Infinite number of lines can be passed through one given point.

(ii) Only one line can pass through two given points.

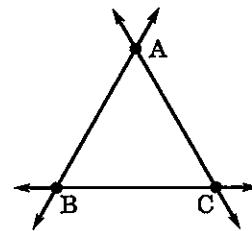
(iii) Three lines can pass through three non-collinear points.



(i)

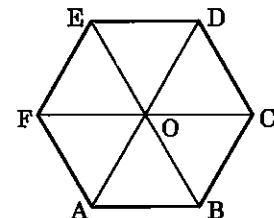


(ii)



(iii)

Q12. Look at the given figure and answer the following:



- (a) Name the sides of the polygon ABCDEF.
 (b) Name any two pairs of adjacent sides.
 (c) Name all the segments which intersect each other at one point.
 (d) Name all the diagonals of the given polygon.

Sol. (a) The sides of the polygon are:

\overline{AB} , \overline{BC} , \overline{CD} , \overline{DE} , \overline{EF} and \overline{FA}

- (b) \overline{AB} and \overline{BC} , \overline{BC} and \overline{CD} are the pairs of adjacent sides.
- (c) \overline{AD} , \overline{BE} and \overline{CF} intersect each other at O.
- (d) Name of the diagonals are:
 \overline{AD} , \overline{BE} and \overline{CF}

Q13. Fill in the blanks.

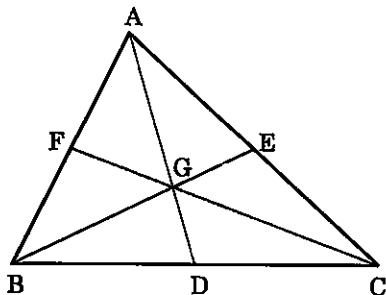
- (a) is the largest chord of a circle.
- (b) divides the circle into two equal semi-circles.
- (c) Rectangle is a curve.
- (d) Triangle has angles and three
- (e) Only one line can be drawn through points.
- (f) number of lines can pass through a given point.
- (g) A closed figure made up of entirely of line segments is called a
- (h) A curve which does not cross itself is called a curve.
- (i) The length of boundary of a circle is called its

- Sol. (a) Diameter (b) Diameter
(c) Closed (d) three, sides
(e) two (f) Infinite
(g) polygon (h) simple
(i) circumference

III. LONG ANSWER (LA) QUESTIONS

Q14. Draw the medians of a $\triangle ABC$ and answer the following:

- (a) Name the three medians.
- (b) Do the medians intersect each other at the same point?
- (c) What is that point called?
- (d) Can this point be outside the triangle?



- Sol. (a) Names of the medians are \overline{AD} , \overline{BE} and \overline{CF} .
- (b) Yes, the medians intersect each other at the same point G.

- (c) The point of intersection of the medians of a triangle is called 'Centroid'.
- (d) No, this point cannot be out of the triangle.

IV. MULTIPLE CHOICE QUESTIONS (MCQs)

Q15. Least number of line segments required to make a polygon is

- (a) 1 (b) 2 (c) 3 (d) 4

Sol. Correct option is (c).

Q16. How many lines can be drawn through given two points?

- (a) Only one (b) 2
(c) 4 (d) Countless

Sol. Correct option is (a).

Q17. How many vertices are there in a triangle?

- (a) 1 (b) 2 (c) 3 (d) 4

Sol. Correct option is (c).

Q18. Say 'true' or 'False'.

- (a) Two diameters of a circle will necessarily intersect.
- (b) The centre of a circle always lies in the interior.
- (c) The diameter is half of the radius of a circle.
- (d) Longer chord is nearer to the centre of the circle.

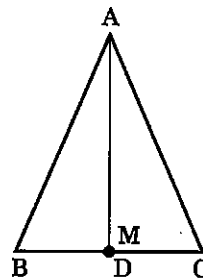
Sol. (a) True (b) True (c) False (d) True

V. HIGHER ORDER THINKING SKILL (HOTS) QUESTIONS

Q19. Draw an equilateral $\triangle ABC$ of any size. Draw AD as its median and an altitude AM.

- (i) Does AD coincide with AM?
- (ii) Name the point on the median which divides it in the ratio 1 : 2.
- (iii) What is the measure of $\angle ADC$ and $\angle ADB$?
- (iv) Are D and M the same points?

Sol. (i) Yes, AD coincides with AM.



- (ii) The point on the median which divides it in the ratio 1 : 2 is called centroid of the triangle.
- (iii) $\angle ADC = \angle ADB = 90^\circ$
- (iv) Yes, D and M are the same points.

Q20. In the given figure, l, m and n are three parallel lines, x and y intersect these lines.

(i) Name the points lying on the line x .

(ii) Name the points lying on the line y .

(iii) Name the points inside the quadrilateral ABED.

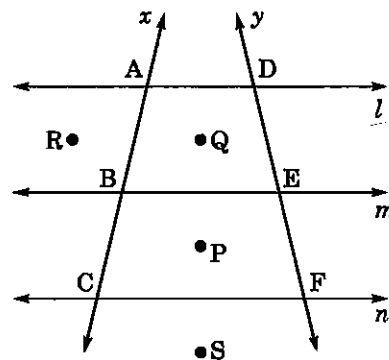
(iv) Name the points outside the quadrilaterals ABED and BCFE.

(v) Name the lines passing through three points.

Sol. (i) A, B and C lie on the line x .

(ii) D, E and F lie on the line y .

(iii) Q is the point inside \square ABED



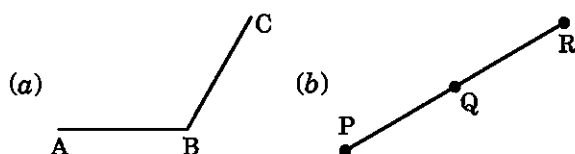
(iv) Points R and S are outside the quadrilaterals ABED and BCFE.

(v) Lines x and y pass through the three points A, B, C and D, E, F respectively.

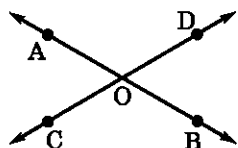
Test Yourself

VERY SHORT ANSWER (VSA) QUESTIONS

- If the radius of circle is 2.5 cm, find the length of its diameter.
- Draw a diagram of:
 - A line segment MN
 - a ray XY
 - A line OP
- How many line segments are there in each of the following figures? Name all of them.



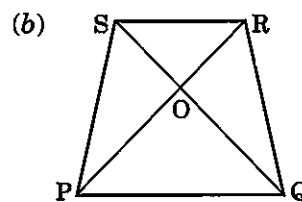
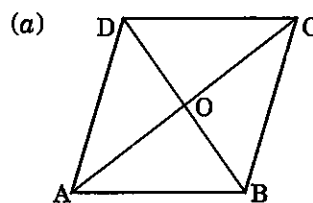
- In the given figure, identify the lines, rays and line segments.



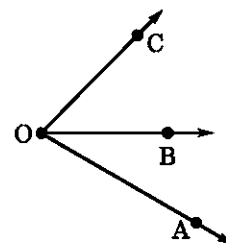
- Draw any circle of radius 2.5 cm and mark
 - its centre
 - its diameter
 - a sector
 - an arc.

SHORT ANSWER (SA) QUESTIONS

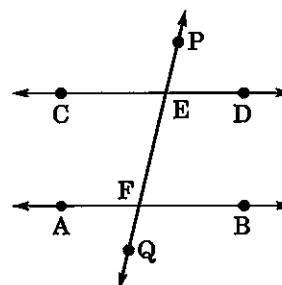
- In a plane, if three lines are drawn, what is the
 - maximum
 - minimum
 number of point of intersection of these lines?
- Name the sides, the vertices and diagonals of each of the following polygons:



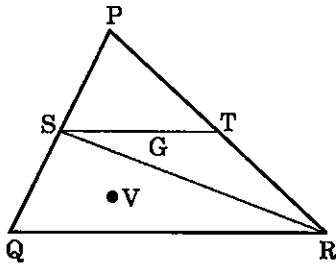
- In the given figure, name all the possible angles.



- In the given figure, name the eight angles.



10. In the given figure, which of the triangles have



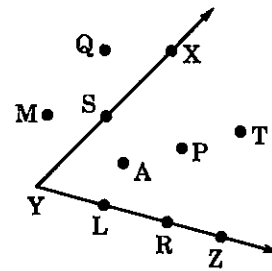
- (a) Q in their exterior?
 (b) S on at least one of its sides?
 (c) V in their interior?

LONG ANSWER (LA) QUESTIONS

11. Fill in the blanks.

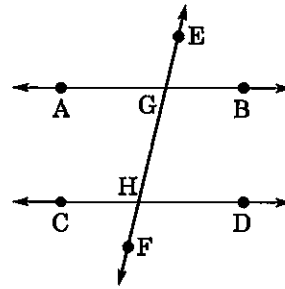
- (a) A median of a triangle is the line segment joining vertex to the of the opposite side.
 (b) Medians of a triangle are
 (c) is the point where the three medians of a triangle meet.
 (d) An altitude of a triangle is the drawn from a vertex to the opposite side.
 (e) Altitudes of a triangle are

12. In the given figure, name the points which are:



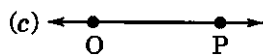
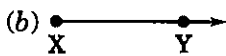
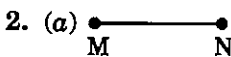
- (a) in the interior of $\angle XYZ$
 (b) in the exterior of $\angle XYZ$
 (c) on $\angle XYZ$

13. Write the names of all the angles of the given figure.



ANSWERS

1. 5 cm



3. (a) 2, \overline{AB} and \overline{BC}

(b) 3, \overline{PQ} , \overline{QR} and \overline{PR}

4. (i) Lines: \overline{AB} and \overline{CD}

(ii) Rays: \overline{OA} , \overline{OB} , \overline{OC} , \overline{OD}

(iii) Line segments:

\overline{OA} , \overline{OB} , \overline{OC} , \overline{OD} , \overline{AB} and \overline{CD}

5. Do yourself

6. (a) 3 (b) 2

7. (a) Sides: AB, BC, CD and DA

Vertices: A, B, C and D

Diagonals: AC and BD

(b) Sides: PQ, QR, RS and SP

Vertices: P, Q, R and S

Diagonals: OR and QS

8. $\angle COA$, $\angle COB$ and $\angle BOA$

9. $\angle PED$, $\angle PEC$, $\angle DEF$, $\angle CEF$, $\angle AFE$, $\angle BFE$, $\angle AFQ$ and $\angle BFQ$

10. (a) $\triangle PST$, $\triangle PSR$ and $\triangle TSR$

(b) $\triangle PQR$

(c) $\triangle PQR$ and $\triangle SQR$

11. (a) mid point (b) concurrent

(c) Centroid (d) perpendicular

(e) concurrent

12. (a) A, P and T

(b) Q and M

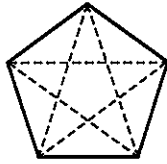
(c) S, L and R

13. $\angle EGB$, $\angle AGE$, $\angle AGH$, $\angle BGH$, $\angle GHD$, $\angle GHC$, $\angle CHF$ and $\angle DHF$.

Internal Assessment

1. How many diagonals are there in the given figure?

(a) 4 (b) 5 (c) 2 (d) 3



2. Two intersecting lines intersect at
 (a) 1 point (b) 2 points
 (c) 3 points (d) 4 points

7. Match the following:

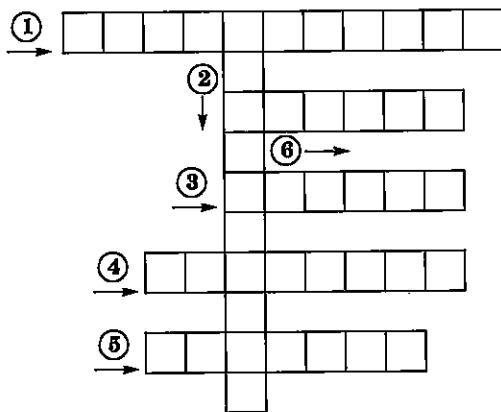
Column I

- (a) A line segment can be
 (b) A line
 (c) A ray
 (d) In an angle, the lengths of the arms do not effect its

Column II

- (i) extends infinitely in one direction
 (ii) measure
 (iii) measured
 (iv) extends infinitely in both directions.

8. Complete the following puzzle as per the given directions:



Direction:

1. A is portion of a line whose end point are fixed.
2. The diameter of a circle divides it into two equal parts. Each part is called a
3. The central point of a circle is called
4. Triangle has three
5. A figure enclosed with the sides more than two is called a
6. A in a triangle is the line segment joining any vertex to the mid point of the opposite side.

ANSWERS

1. (b) 2. (a) 3. (a)
 4. (b) 5. (d) 6. (d)
 7. (a) ↔ (iii) (b) ↔ (iv)
 (c) ↔ (i) (d) ↔ (ii)

8. 1. LINE SEGMENT 2. SEMICIRCLE
 3. CENTRE 4. VERTICES
 5. POLYGON 6. MEDIAN