

Name: _____

Grade : VI

Subject : Mathematics

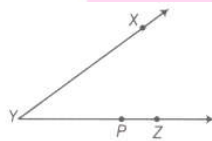
Chapter 4: Basic Geometrical Ideas

I. Multiple Choice Questions

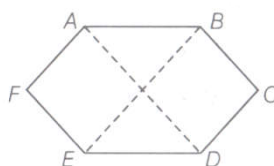
1. How many points are marked in the following figure?



- a. 1 b. 2 c. 3 d. 4
2. Number of lines passing through five points such that no three of them are collinear, is
- a. 10 b. 15 c. 20 d. 8
3. The number of circles that can be drawn with a given centre is
- a. 2 b. 3 c. 4 d. Infinite
4. Which of the following has two end points?
- a. Ray b. Line c. Line segment d. None of the above
5. In the given figure, $\angle XYZ$ cannot be written as



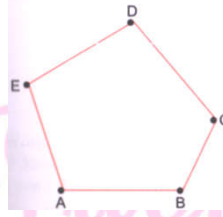
- a. $\angle Y$ b. $\angle ZXY$ c. $\angle ZYX$ d. $\angle XYP$
6. Which of these is an example for a pair of these parallel lines?
- a. Corner of a room b. Railway track
- c. Sides of a triangle d. Surface of a ball.
7. Which of the following are the diagonals of the given polygon?
- a. AD and BE b. AF and FE c. BC and ED d. AB and ED



8. The least number of line segment required to make a polygon is
- a. 1 b. 2 c. 3 d. 5

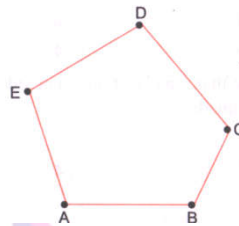
4. How many vertices are there in the following figure?

- a. 5 b. 3 c. 2 d. 4



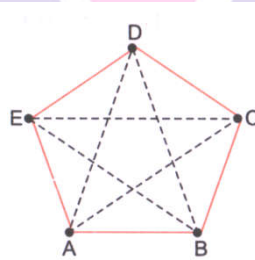
5. How many sides are there in the following figure?

- a. 5 b. 2 c. 2 d. 3



6. How many diagonals are there in the following figure?

- a. 4 b. 5 c. 2 d. 3



7. How many vertices are there in a triangle?

- a. 1 b. 2 c. 3 d. 4

8. How many sides are there in a triangle?

- a. 1 b. 2 c. 3 d. 4

9. How many angles are there in a triangle?

- a. 1 b. 2 c. 3 d. 4

10. How many vertices are there in a quadrilateral?

- a. 1 b. 2 c. 3 d. 4

11. How many sides are there in a quadrilateral?

- a. 1 b. 2 c. 3 d. 4

12. How many angles are there in a quadrilateral?

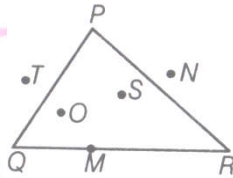
- a. 1 b. 2 c. 3 d. 4

13. How many pairs of adjacent sides are there in a quadrilateral?

- a. 1 b. 2 c. 3 d. 4

I. Fill in the Blanks

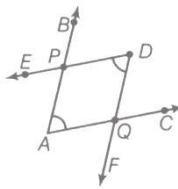
1. In the given figure, points lying in the interior of the ΔPQR are _____, that in the exterior are _____ and that on the triangle itself are _____.



2. The radius of a circle is _____ of its diameter.

3. Diameter of a circle is _____ chord.

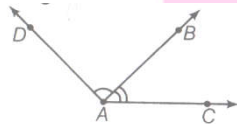
4. The number of common points in the two angles marked in the given figure is _____.



5. All the radii of a circle are _____.

6. _____ Number of diameter can be drawn in a circle.

7. The common part between the two angles BAC and DAB in figure is _____.

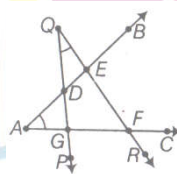


8. Two lines intersect at _____ point.

9. A quadrilateral has _____ sides.

10. A triangle has _____ vertices.

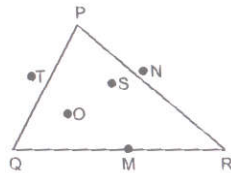
11. The number of common points in the two angles marked in the given figure is _____.



1. P, Q, R, M	2. Twice	3. Longest	4. P and Q Common points	5. Equal	6. Infinite
7. AB	8. One	9. Four	10. Three	11. Four	

II. Fill in the Blanks

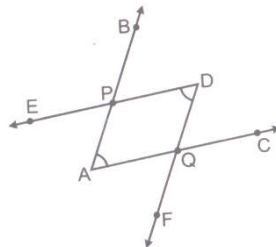
- The number of diagonals in a hexagon is _____.
- In Fig. points lying in the interior of the triangle PQR are _____ that in the exterior are _____ and that on the triangle itself are _____.



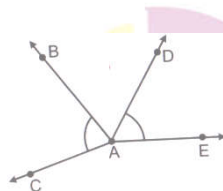
- In Fig. points A, B, C, D and E are collinear such that $AB = BC = CD = DE$. Then
 - $AD = AB +$ _____
 - $AD = AC +$ _____
 - Midpoint of AE is _____
 - Midpoint of CE is _____
 - $AE =$ _____ AB .



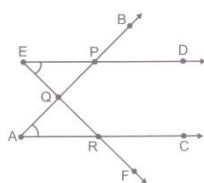
- The number of common points in the two angles marked in Fig. is _____.



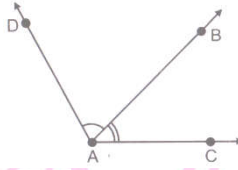
- The number of common points in the two angles marked in Fig. is _____.



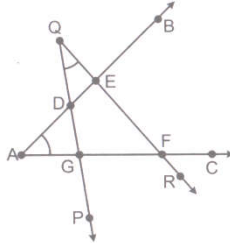
- The number of common points in the two angles marked in Fig. _____.



7. The common part between the two angles BAC and DAB in Fig. is _____.



8. The number of common points in the two angles marked in Fig. is _____.



9. _____ is the point, where there medians of a triangle meet.

10. All _____ of a circle are equal.

11. A figure which begins and ends at the same point is called a _____.

12. A median of a triangle is the _____ that joins a vertex to the _____ of opposite sides.

13. A _____ has no end points.

1. 9	2. O and S, T & N, M, P, Q, R	3. a) BD b) CD c) C d) D e) 4	4. Two	5. One	6. Three	7. Ray AB,
8. Four	9. Centroid	10. Radii/diameters	11. Closed curve	12. Line segment, mid-point	13. Line	

I. Match the following

a) The line segment joining points A and B is denoted by	i) Circumference
b) The distance around the circle is the	ii) \overline{AB}
c) The diameter of a circle divides it into	iii) segment
d) A region in the interior of the circle enclosed by an arc and a chord	iv) Two-semi circle

a) ii	b) i	c. iv	d. iii
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II. Match the following

1. Longest chord of a circle	a. Altitude
2. Point of concurrence of medians	b. Median
3. Geometrical figure having fixed length	c. Diameter
4. Line segment drawn perpendicular to opposite sides	d. Centroid
5. Geometrical figure having no definite length	e) Ray
6. Line segment joining mid-point of a side of triangle to opposite vertex	f) Line

1. c	2. d	3. f	4. a	5. e	6. b
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I. True or False

1. Two non-parallel line segments will intersect.
2. Two parallel lines meet such other at same point.
3. Many lines can pass through two given points.
4. Two angles have exactly one common arm.
5. A circle has only one centre.
6. In any triangle, numbers of line segments are three.
7. A line has end point.
8. A simple curve is one that does not cross itself.
9. A curve is said to be closed, if its end are not joined.
10. An angle is made up of two rays starting from a common end point.
11. In the given figure, $\perp AB$ and $PO = OQ$. Is PQ the perpendicular bisector of line segment AB?

1. False	2. False	3. False	4. True	5. True	6. True
7. False	8. True	9. False	10. True	11. True	

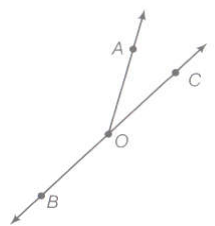
II. True or False

1. If line PQ \parallel line m, then line segment PQ \parallel m.
2. Measures of $\angle ABC$ and $\angle CBA$ in Fig are the same
3. Two lines segments may intersect at two points.
4. Many lines can pass through two given points.
5. Only one line can pass through a given point.
6. Two angles can have exactly five points in common.
7. Point has a size because we can see it as thick dot on paper
8. Two lines in a plane always intersect at a point.
9. All radii of a circle are equal.
10. Diameter is a chord of a circle.
11. The distance between parallel lines is same throughout.
12. Four points are collinear if any three of them lie on the same line.

1. True	2. True	3. False	4. False	5. False	6. False
7. False	8. False	9. True	10. True	11. True	12. False

I. Very Short Answer Type Questions

1. Use the following figure to name:



- a) All the points
 - b) two line segments.
-
- a) The points are O, A b and C.

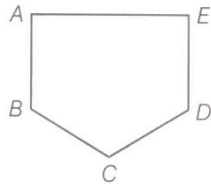
b) Two line segments are \overline{OA} and \overline{OC} .

2. Name the line segments in given below



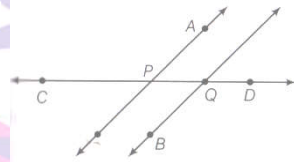
All the line segments are \overline{PQ} , \overline{PR} , \overline{PS} , \overline{QR} , \overline{QS} and \overline{RS} .

3. Name the line segments shown in given figure.



The line segments are \overline{AB} , \overline{BC} , \overline{CD} , \overline{DE} and \overline{AE} .

4. Consider the following figure and write the name of:



a) a ray, which contains point A.

b) a ray, which contains point B.

a) Ray, which contains point A is \overrightarrow{PA} .

b) Ray, which contains point B is \overrightarrow{QB} .

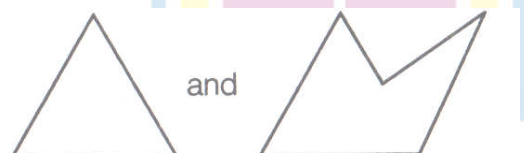
5. Draw two curves that are opened

The open curves are



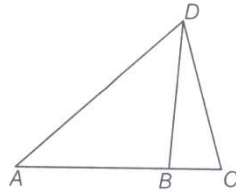
6. Draw two curves that are closed.

The closed curves are



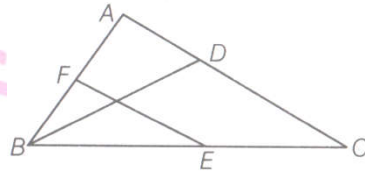
7. Name the vertices in given figure

The vertices in the above figure are A, B, C and D.



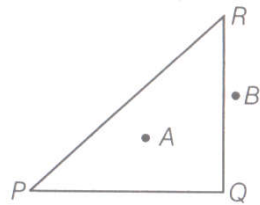
8. Write down three angles involved in $\triangle ABC$ of the given figure.

The three angles in the above figure are $\angle BAC$, $\angle ABC$, and $\angle ACB$.



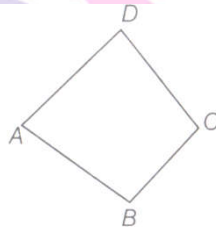
9. In $\triangle PQR$, write its interior and exterior point.

The interior of $\triangle PQR$ is A and exterior is B.



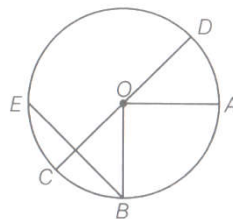
10. Write the opposite sides of the given quadrilateral.

The opposite sides are \overline{AB} and \overline{CD} , \overline{BC} and \overline{DA} .



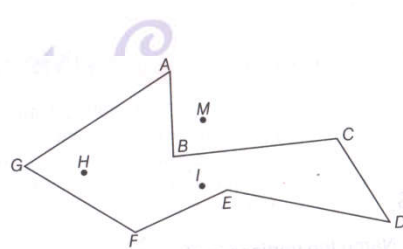
11. Give the name of all chords in the given figure.

The chords of the below circle are BE and CD.



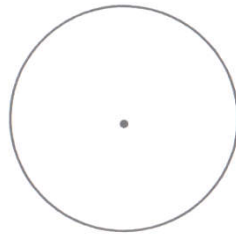
12. Write all exterior and interior points of the given figure.

Here, interior are H, I and exterior is M.



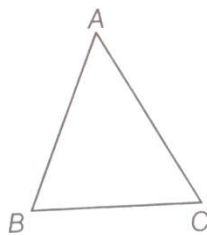
13. Write all vertex of the given figure.

Vertex of a circle cannot be possible i.e. circle has no vertex.



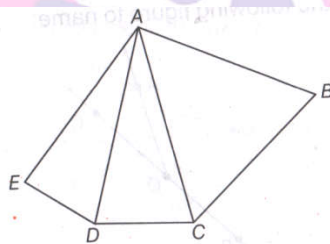
14. Write vertex of opposite side of AB and BC of the given figure.

Vertex of opposite side of AB is C and of BC is A.



15. Write all vertices of the given figure.

In the given picture, vertices are A, B, C, D and E



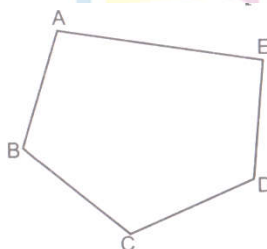
II. Very Short Answer Type Questions

1. Name all the line segments in Fig.



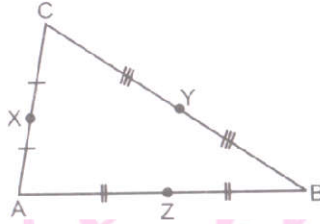
The line segments are AB, AC, AD, AE, BC, BD, BE, CD, CE, DE.

2. Name the line segments shown in Fig.



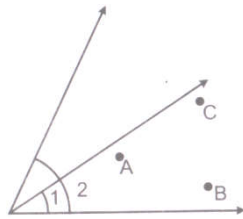
The line segments are AB, BC, CD, DE, EA.

3. State the mid points of all the sides of Fig.



It is clear from the figure that mid points of all the sides of a triangle are X, Y and Z.

4. Look at Fig Mark a point



- A which is in the interior of both $\angle 1$ and $\angle 2$.
- B which is in the interior only $\angle 1$.
- Point C in the interior of $\angle 1$. Now, state whether points B and C lie in the interior of $\angle 2$ also.

Yes, it is clear from the given figure, that the points B and C lie in the interior of $\angle 2$ also.

5. Will the lengths of line segment AB and line segment BC make the length of line segment AC in Fig.



It is clear from the figure that line segment AB and in segment BC make, the line segment AC. Hence, answer is yes.

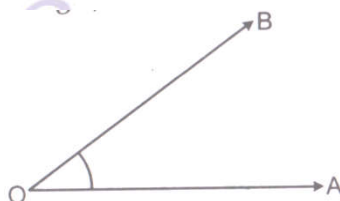
6. What is the radius of a circle whose diameter is 4.5 cm?

$$2.25 \text{ cm, as radius} = \frac{\text{diameter}}{2}$$

7. How many diameters can a circle have?

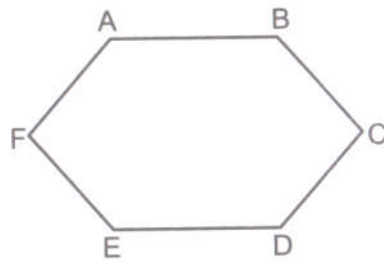
Infinite

8. Name the angle, its vertex and arms from figure.



$\angle AOB$, vertex O, arms OA, OB

9. Name the angles in the following figure.



$\angle A, \angle B, \angle C, \angle D, \angle E,$ and $\angle F.$

10. Find the circumference of a circle whose diameter is 2 cm.

$$\begin{aligned} \text{Circumference} &= \pi d \\ &= 3.14 \times 2 \\ &= 6.28 \text{ cm} \end{aligned}$$

III. Very Short Answer Type Questions

1. How many lines can pass through

- i) One given points?
- ii) two given points

- i) Countless
- ii) Only one line

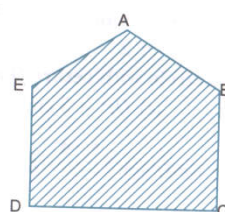
2. Is it ever possible for exactly one line to pass through three points?

Yes, it's possible for one line to pass through three points only when these points are collinear.

3. Lines P, q are coplanar. So are the lines p, r . Can we conclude that the lines p, q, r are coplanar?

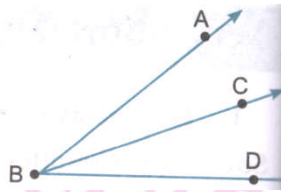
Yes, lines p, q, r are coplanar.

4. Draw any polygon and shade its interior.

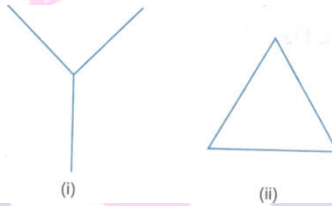


5. Will the measure of $\angle ABC$ and $\angle CBD$ make measure of $\angle ABD$ in Fig. 4.8?

Yes because $\angle ABC + \angle CBD = \angle ABD$.



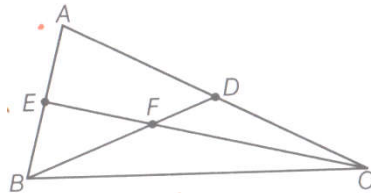
6. What is common in Fig. 4.9 i) and ii)?



Both figures have 3 line segments.

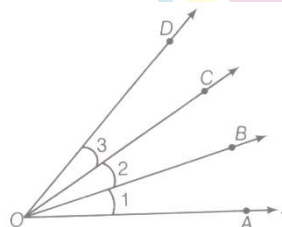
I. Short Answer Type Questions

1. Write down six angles involved in the given figure.



Six angles involved in the above figure are $\angle ABC$, $\angle BCA$, $\angle CAB$, $\angle AEC$, $\angle ABD$ and $\angle DBC$.

2. In the following figure, name the angles using three letters.



a) $\angle 1$

b) $\angle 2$

c) $\angle 3$

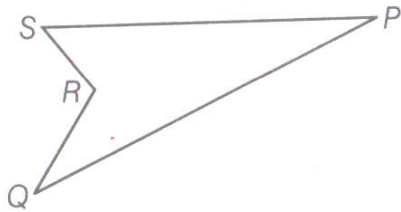
Here, we can write the name of angles with the help of given figure;

a) $\angle 1 = \angle AOB$

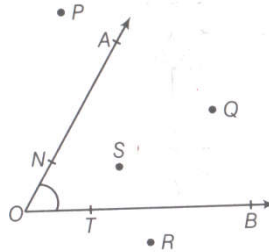
b) $\angle 2 = \angle BOC$

c) $\angle 3 = \angle COD$

3. Is PQRS a figure of polygon? If yes, what is the special name for it?
 Yes, it is a polygon, because it is a simple closed curve. Figure made up of line segments only. It is a quadrilateral.

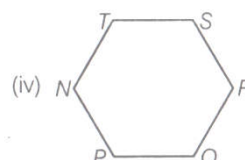
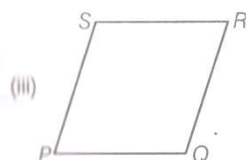
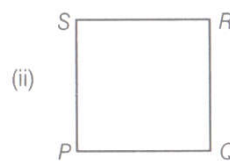
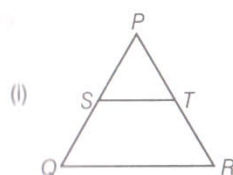


4. In the given figure, list the points which
 i) are in the interior of $\angle AOB$.
 ii) are in exterior of $\angle AOB$.
 iii) lie on $\angle AOB$



- i) The interior points of $\angle AOB$ are S and Q.
 ii) the exterior points of $\angle AOB$ are P and R.
 iii) The points, which lie on $\angle AOB$ are A, O, B, T and N.

5. Identify parallel line segments in each of the figure given below.



Parallel lines in the above figures are

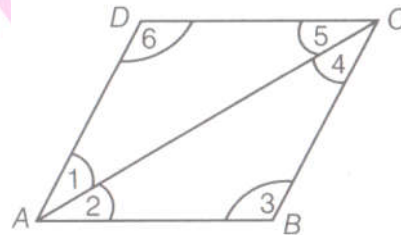
- i) ST and QR.
 ii) PQ and SR, SP and QR
 iii) PQ and SR, and SP.
 iv) PQ and TS, QR and TN, SR and NP.

6. How many lines can pass through

- a) One given points?
- b) Two given points?
- c) Three non-collinear points?

- a) Through one given point, infinite number of lines can be drawn.
- b) Through two given points, only one line can be drawn.
- c) Through three non-collinear points, three lines can be drawn.

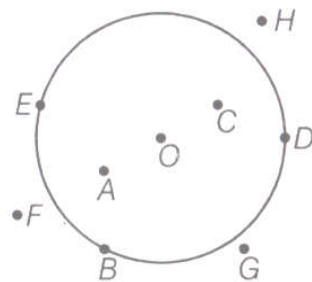
7. In the given figure, write



- a) name of the vertex of $\angle 3$.
- b) name of the common arm of $\angle 1$ and $\angle 2$
- c) name the vertex of $\angle 4$.

- a) The vertex of $\angle 3$ is B.
- b) Common arm of $\angle 1$ and $\angle 2$ is AC.
- c) The vertex of $\angle 4$ is C.

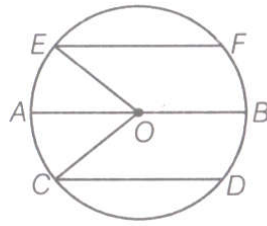
8. In the given figure, name the points, which are



- a) in its exterior
- b) in its interior
- c) on the circle.

- a) the points, which are in the exterior are F, G and H.
- b) Interior points are A, O and C.
- c) The points, while lie on the circle are B, D and E.

9. In the given figure, write the name of



- i) chords of the circle.
- ii) radii of the circle
- iii) sector of the circle.

- i) Chords are CD, AB and EF.
- ii) Radii are OE, OA, Ob and OC.
- iii) Sectors are AOE, AOC, and COE.

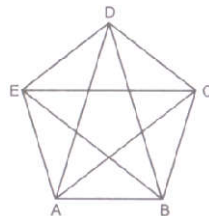
10. How many radii can be drawn on a circle?

- i) parallel lines.
- ii) point of intersection of the line l and n .
- iii) point of intersection of the line q and r .
- iv) point of intersection of the line m and r
- v) point of intersection of the line p and m .

There are infinite number of radii can be drawn on a circle.

II. Short Answer Type Questions

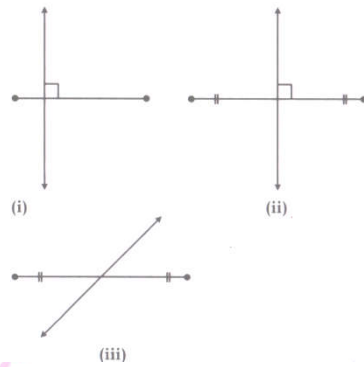
1. Draw all the diagonals of a pentagon ABCDE and name them.



Diagonals are AC, CD, BE, BD and CE.

2. In which of the following figure (i-iii)

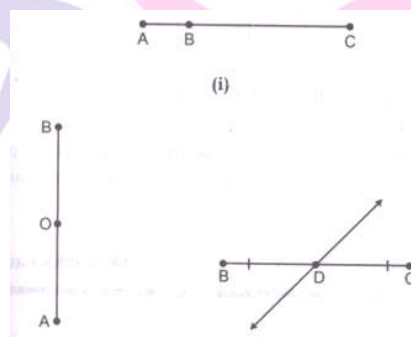
- a) Perpendicular bisector is shown?
- b) bisector is shown?
- c) only bisector is shown?
- d) only perpendicular is shown?



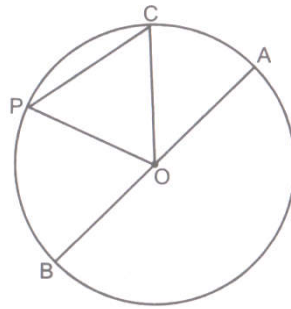
- a) ii
- b) ii and iii)
- c) iii)
- d) i)

III. Short Answer Type Questions

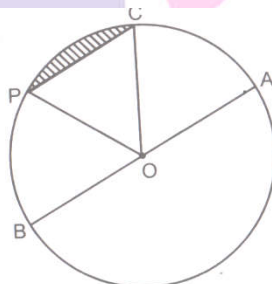
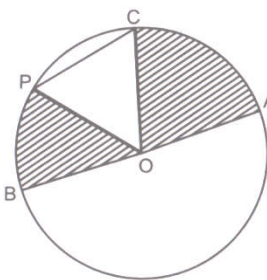
1. Which point in Fig. appears to be mid-points of the line segments? When you locate a mid-point. Name the two equal line segments formed by it.



- i) There are no mid-points for the line segments in the given Fig.i)
 - ii) O is the mid-point of line segment AB.
 - iii) D is the mid-point of line segment BC. Two equal line segments are BD and DC.
2. In Fig. O is the centre of the circle.
- a) Name all chords of the circle
 - b) Name all radii of the circle.
 - c) Name a chord, which is not the diameter of the circle.
 - d) Shade sectors OAC and OPB.
 - e) Shade the smaller segments of the circle formed by CP.



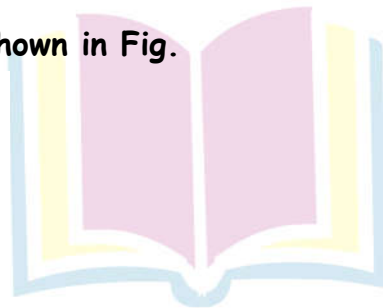
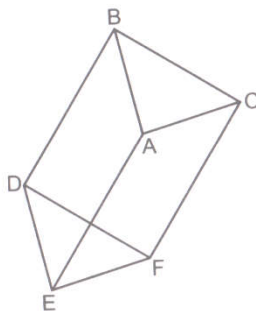
- a) All Chords of the circle are CP and AB
- b) All radii of the circle are OA, OB, OC and OP
- c) The chord which is not the diameter of the circle is CP.
- d)



e)

3. Write the name of:

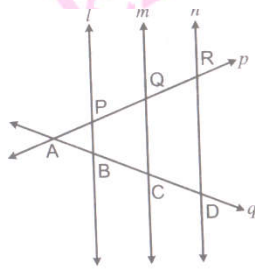
- a) Vertices
- b) edges and
- c) faces of the prism shown in Fig.



- a) Vertices: A, B, C, D, E and F
- b) Edges: AB, AC, BC, BD, DF, FC, ED and AE
- c) Faces: ABC, DEF, AEFC, AEDB and BDFC.

4. From fig. name

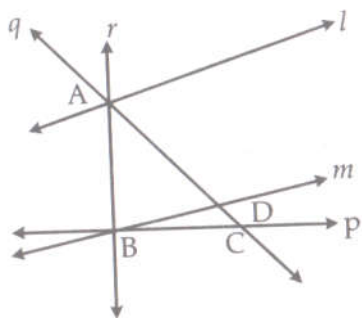
- i) all points of parallel lines.
- ii) all pairs of intersecting lines.
- iii) Lines of whose points of intersection is P.
- iv) lines whose point of intersection is C.
- v) Lines whose point of intersection is R.
- vi) Collinear points.



- i) Clearly, following are pairs of parallel lines: l and m ; m and n ; l and n .
- ii) Following are pairs of intersecting lines:
 $l, p; m, p; n, p; l, q; m, q; n, q; p, q$
- iii) P is the point of intersection of lines l and p .

5. From Fig. write

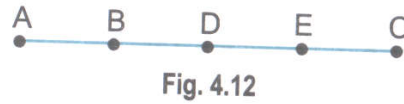
- i) Lines intersecting at A
- ii) Lines intersecting at B.
- iii) Concurrent lines and their point of concurrence.



- i) Clearly, lines l, q and r intersect at A.
- ii) Lines m, p and r intersect at B.
- iii) Lines l, q and r are concurrent with A as the point of concurrence. Also lines m, p and r are concurrent at B.

III. Short Answer Type Questions

1. In Fig. 4.12 how many line segments are there? Name them.

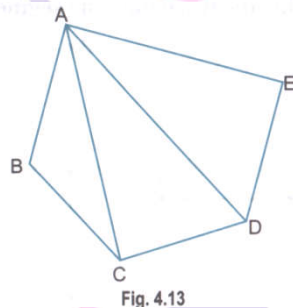


10 line segments are there.

Line segments in the figure are

$\overline{AB}, \overline{AD}, \overline{AE}, \overline{AC}, \overline{BD}, \overline{BE}, \overline{BC}, \overline{DE}, \overline{DC}, \overline{EC}$

2. Name the vertices and the line segments in Fig. 4.13



Vertices: A, B, C, D and E.

Line segments: $\overline{AB}, \overline{AC}, \overline{AD}, \overline{AE}, \overline{BC}, \overline{CD}, \overline{DE}$

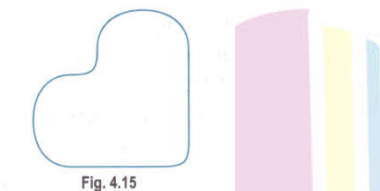
3. Draw rough diagrams to illustrate the following:

i) Open curve

ii) Closed curve

i) Open curve

ii) Closed curve



4. Fill in the blanks:

i) In Fig. 4.16, points lying in the interior of the triangle PQR are _____, that in the exterior are _____ and that on the triangle itself are _____.

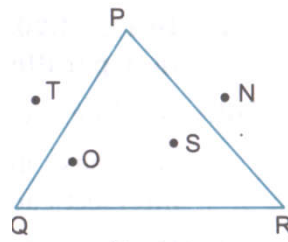


Fig. 4.16

ii) The number of triangles in Fig. 4.17 is _____. Their names are _____.

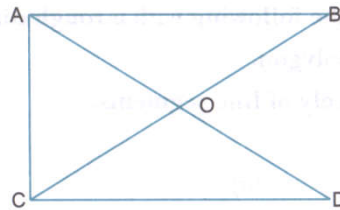


Fig. 4.17

iii) The number of straight angles in Fig. 4.17 is _____.

- i) O and S, T and N, P, Q and R
- ii) 5, $\triangle AOB$, $\triangle AOC$, $\triangle ACD$, $\triangle COD$, $\triangle ABC$
- iii) four

5. Which points in Fig. 4.18 appear to be mid-points of the line segments? When you locate a mid-point, name the two equal line segments formed by it.

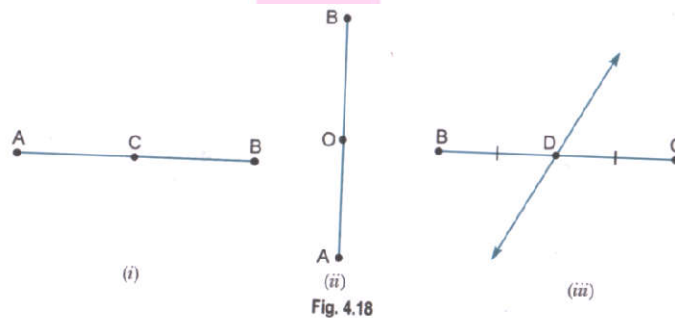


Fig. 4.18

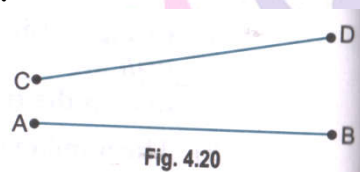
- i) Mid point is C
Line segments are \overline{CA} and \overline{CB}
- ii) Mid point is O.
Line segments are \overline{OB} and \overline{OA} .
- iii) Mid point is D.
Line segments are \overline{DB} and \overline{DC} .

6. In Fig. 4.19,
 i) is $AC + CB = AB$?
 ii) is $AB + AC = CB$?
 iii) is $AB + BC = CA$?



- i) Yes ii) No iii) No

7. In Fig. 4.20, do the segments AB and CD intersect? Are they parallel? Give reasons for your answer.



No, line segments AB and CD do not intersect.

No, these line segments are not parallel as lines would intersect each other when produced in one direction.

8. Illustrate, if possible, each one of the following with a rough diagram:
 i) A closed curve that is not a polygon.
 ii) An open curve made up entirely of line segments.
 iii) A polygon with two sides.

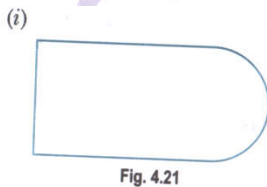


Fig. 4.21



- iii) Not possible as polygons have at least 3 sides.

9. Name the angles in the given Fig. 4.23.

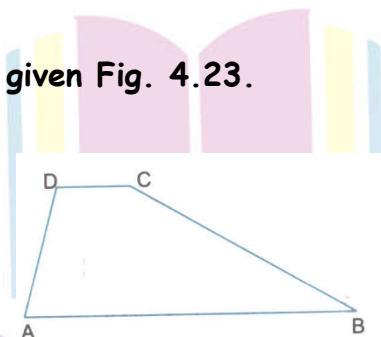
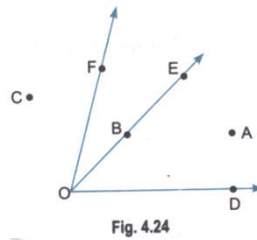


Fig. 4.23

- $\angle A$ or $\angle DAB$
 $\angle B$ or $\angle ABC$
 $\angle C$ or $\angle BCD$
 $\angle D$ or $\angle CDA$

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

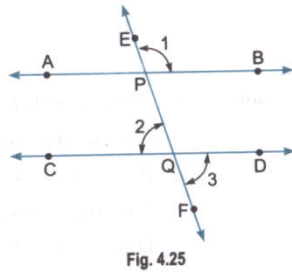
- i) in the interior of $\angle DOE$
- ii) in the exterior of $\angle EOF$
- iii) on $\angle EOF$



- i) point A
- ii) point C, A, D
- iii) points B, E, O, F.

11. In Fig. 4.25, write another name for:

- i) $\angle 1$

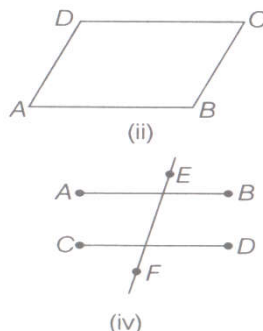
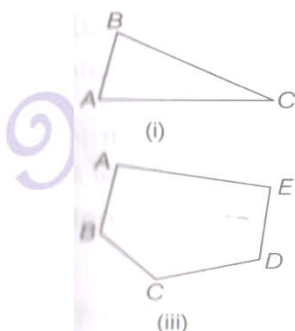


- ii) $\angle 2$
- iii) $\angle 3$

- i) $\angle EPB$ or $\angle BPE$
- ii) $\angle CQP$ or $\angle PQC$
- iii) $\angle DQF$ or $\angle FQD$

I. Long Answer Type Questions

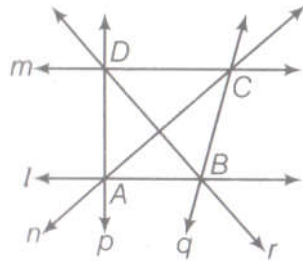
1. Name the points and then the line segments in each of the following figures.



- i) The points are A, B, C and line segments are \overline{AB} , \overline{AC} , \overline{BC} .

- ii) The points are A, B, C, D and line segments are $\overline{AB}, \overline{BC}, \overline{CD}, \overline{AD}$.
- iii) The points are A, B, C, D, E and line segments are $\overline{AB}, \overline{BC}, \overline{CD}, \overline{DE}, \overline{AE}$.
- iv) The points are A, B, C, D, E, F and the line segments are $\overline{AB}, \overline{CD}, \overline{EF}$.

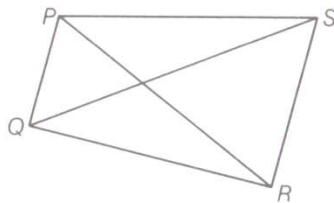
2. In the given figure, write



- i) parallel lines.
- ii) point of intersection of the line l and n
- iii) point of intersection of the line q and r
- iv) point of intersection of the line m and r .
- v) point of intersection of the line p and m .

- i) The lines l and m are parallel lines
- ii) point of intersection of the lines q and r is A .
- iii) point of intersection of the line q and r is B .
- iv) point of intersection of the line m and r is D .
- v) point of intersection of the line p and m is D .

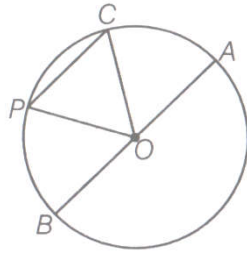
3. Look at following figure and answer the following questions.



- i) Name the four sides of quadrilateral PQRS.
- ii) Name the four pairs of adjacent sides.
- iii) Name two pairs of opposite sides.
- iv) Name a pair of diagonal.

- i) Four sides of quadrilateral PQRS are $\overline{PQ}, \overline{RS}, \overline{PS}$ and \overline{QR} .
- ii) Four pairs of adjacent sides are PQ and QR , QR and RS , RS and SP , SP and PQ .
- iii) Two pairs of opposite sides are QR and PS , PQ and SR .
- iv) Pair of diagonal is PR and QS .

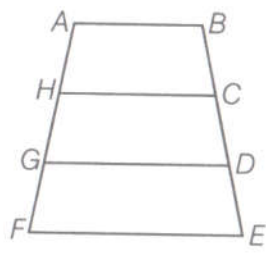
4. In the given figure, O is the centre of the circle.



- Name all chords of the circle.
- Name all radii of the circle.
- Name a chord, while is not the diameter of the circle.
- Shade the sectors OAC and OPB .
- Shade the smaller segment of the circle formed by CP .

- Chords of the circle are CP and AB .
- Radii of the circle are OA , OB , OC and OP .
- The chord CP is not a diameter of the circle.
- Shaded sectors of OAC and OPB are given below.
- Shaded smaller segment formed by CP is given below:

5. Sohan wants to show gratitude toward his teacher by giving a card made by him. He has three pieces of paper pasted one above the other as shown in the figure. These pieces are arranged in a way that $AB \parallel HC \parallel GD \parallel FE$. He wants to decorate the card by putting up a colored take on non-parallel sides of the card.



- Write the non-parallel sides of the card.
- Which value is depicted by the Sohan?

- Non-parallel sides are AF and BE .
- Respect to teacher, happiness, beauty and knowledge.

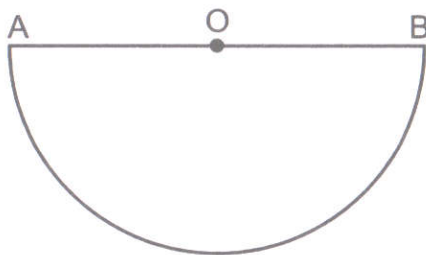
6. Look at figure and mark a point
- A, which is in the interior of both $\angle 2$.
 - B, which is in the interior of only $\angle 1$.
 - C in the interior of $\angle 1$.

Now, state whether points B and C lie in the interior of $\angle 2$ also.

Yes, it is clear from given figure, that the point B and C lie in the interior of $\angle 2$ also.

II. Long Answer Type Questions

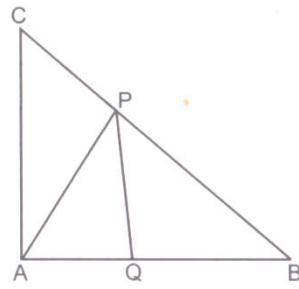
1. In the given figure.



- Name the diameter.
 - Name any radius.
 - Name the arc.
- Is the figure half of a circle?

- AB
 - OA or OB
 - arc AB or AB
- yes, it is a semicircle (half of a circle).

2. i) Name all the triangles formed in given figure:
ii) Which two points lie on side BC and AB respectively?
iii) Name any two line segments inside the triangle ABC.



i) There are 5 triangles

ΔABC ,

ΔCPA ,

ΔAPQ ,

ΔQPB ,

And ΔPBA

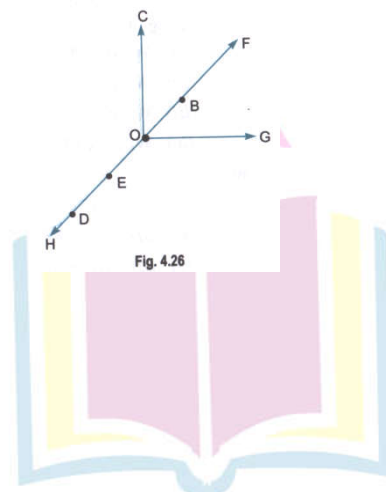
ii) P lies on BC.

Q lies on AB.

iii) AP and QP are two line segments inside the ΔABC .

III. Long Answer Type Questions

1. Use Fig. 4.26 to name:



i) Five points

ii) A line

iii) Four rays

iv) Five line segments

i) Five points are O, E, D, B, C.

ii) \overleftrightarrow{HF}

iii) Many answers are possible, some of them are \overrightarrow{DH} , \overrightarrow{OG} , \overrightarrow{OF} , \overrightarrow{OC} , etc.

iv) Many answers are possible, some of them are, \overline{DE} , \overline{DO} , \overline{EO} , \overline{OB} , \overline{EB} , etc.

2. Use Fig. 4.27 to name:

- i) Line containing point E.
- ii) Line passing through A.
- iii) Line on which O lies
- iv) Two pairs of intersecting lines.

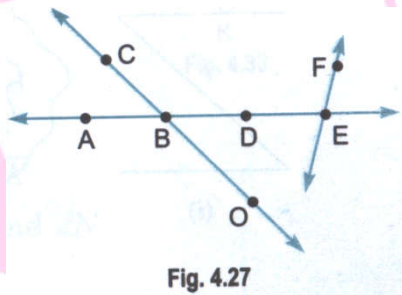


Fig. 4.27

- i) Many answers are possible, one answer is \overleftrightarrow{AE}
- ii) \overleftrightarrow{AE}
- iii) \overleftrightarrow{CO} or \overleftrightarrow{OC} .
- iv) Possible answers are \overleftrightarrow{CO} , \overleftrightarrow{AE} , and \overleftrightarrow{AE} , \overleftrightarrow{AF} .

3. In Fig. 4.29

- i) What is $AE + EC$?
- ii) What is $AC - EC$?
- iii) What is $BD - BE$?
- iv) What is $BD - DE$?

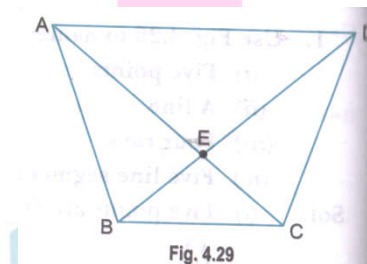
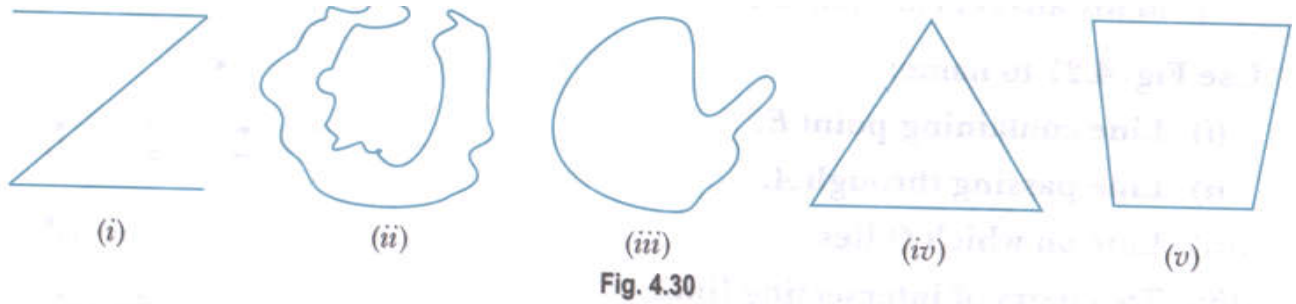


Fig. 4.29

- i) $AE + EC = AC$
- ii) $AC - EC = AE$
- iii) $BD - BE = ED$
- iv) $BD - DE = BE$

Next Generation School

4. In Fig. 4.30, classify the following curves as i) Open or ii) Closed.

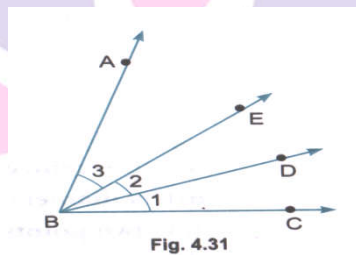


- i) Open
 ii) Closed
 iii) Closed
 iv) Closed
 v) Closed.

5. Name the following angles of Fig. 4.31 using three letters:

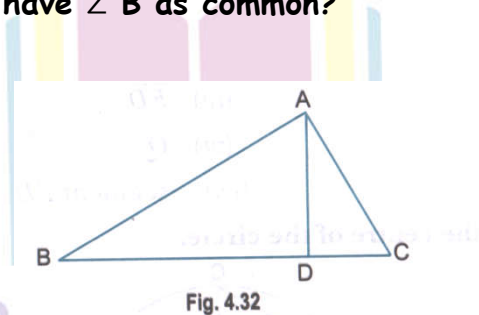
- i) $\angle 1$
 ii) $\angle 2$
 iii) $\angle 3$
 iv) $\angle 1 + \angle 2$
 v) $\angle 2 + \angle 3$
 vi) $\angle 1 + \angle 2 + \angle 3$
 vii) $\angle CBA - \angle 1$

- i) $\angle CBD$
 ii) $\angle DBE$
 iii) $\angle EBA$
 iv) $\angle CBE$
 v) $\angle DBA$
 vi) $\angle CBA$
 vii) $\angle DBA$



6.

- i) Identify three triangles in Fig. 4.32.
 ii) Write the names of seven angles
 iii) Write the names of six line segments.
 iv) Which two triangles have $\angle B$ as common?



- i) Three triangles in figure are $\triangle ABC$, $\triangle ABD$, $\triangle ADC$
 ii) Angles are $\angle B$, $\angle C$, $\angle BAC$, $\angle BAD$, $\angle CAD$, $\angle ADB$, $\angle ADC$.
 iii) Line segments are \overline{AB} , \overline{BC} , \overline{AC} , \overline{AD} , \overline{BD} , \overline{DC} .
 iv) $\triangle ABC$, $\triangle ABD$

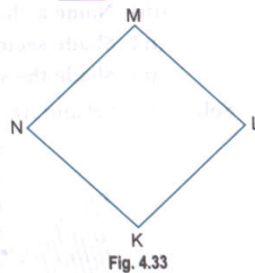
7. Draw a rough sketch of a quadrilateral KLMN state,

- i) two pairs of opposite sides,
- ii) two pairs of opposite angles,
- iii) two pairs of adjacent sides.
- iv) two pairs of adjacent angles.

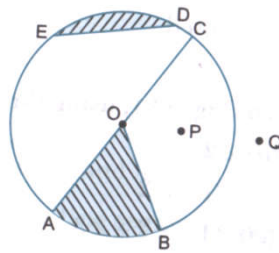
We have quadrilateral KLMN (Fig. 4.33)

Now,

- i) Two pairs of opposite sides are $\overline{KL}, \overline{MN}$ and $\overline{KN}, \overline{ML}$
- ii) Two pairs of angles are $\angle K, \angle M$ and $\angle N$ and $\angle L$.
- iii) Two pairs of adjacent sides are $\overline{KL}, \overline{LM}$, and $\overline{NM}, \overline{NK}$
- iv) Two pairs of adjacent angles are $\angle K, \angle L$ and $\angle M$ and $\angle N$.



8. From Fig. 4.34, identify:



- i) the centre of circle
- iii) a diameter
- v) two points in the interior
- vii) a sector

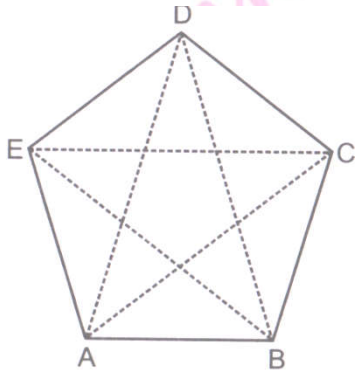
- ii) three radii
- iv) a chord
- vi) a point in the exterior
- viii) a segment

- i) O
- iii) \overline{AC}
- v) O, P
- vii) OAB

- ii) $\overline{OA}, \overline{OB}, \overline{OC}$
- iv) \overline{ED}
- vi) Q
- viii) segment ED

I. High Order Thinking Skills Questions

1. i) Name all the sides, adjacent sides, adjacent vertices of the following figure ABCDE.



- ii) Draw a $\triangle PQR$ Draw its altitude PM and median QS .

i) Sides: AB, BC, CD and EA

Adjacent sides: $(AB, BC), (BC, CD), (CD, DE), (DE, EA), (EA, AB)$

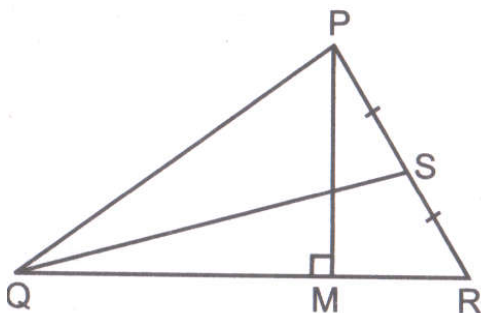
Adjacent vertices : $(A, B), (B, C), (C, D), (D, E), (E, A)$

ii) In $\triangle PQR, PM \perp QR$

So, PM is altitude

Also, S is midpoint of PR

So, QS is median.



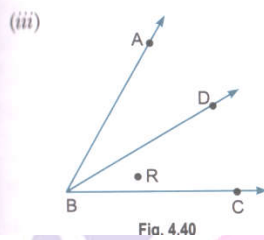
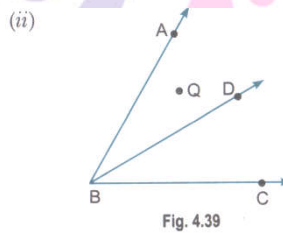
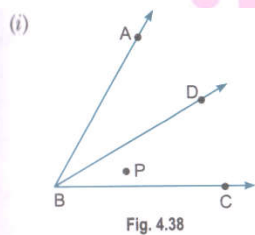
Next Generation School

II. High Order Thinking Skills Questions

1. Draw any $\angle ABC$ and a ray DB so that $\angle DBC$ is formed. Now, mark a point

- i) P which is in the interior of both $\angle ABC$ and $\angle DBC$.
- ii) Q which is not in the interior of $\angle DBC$.
- iii) R in the interior of $\angle ABC$

Now, state whether points Q and R lie in the interior of $\angle ABC$ and $\angle DBC$ respectively.



2. From the given Fig. 4.41, find:

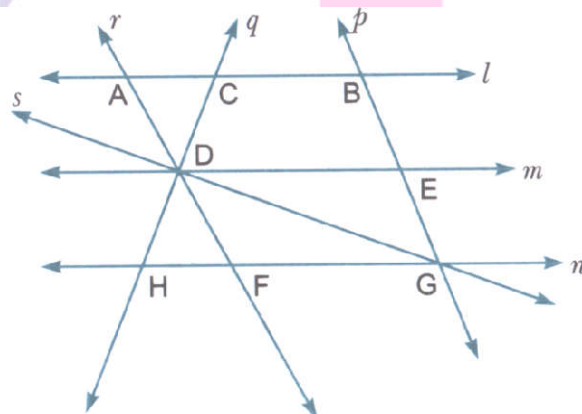


Fig. 4.41

- i) All pairs of parallel lines,
- ii) All pairs of intersecting lines,
- iii) Collinear points,
- iv) Concurrent lines,
- v) Point of concurrence,
- vi) Pair of lines whose point of intersection is F.

- i) l parallel to m , l is parallel to n , m is parallel to n ;
- ii) (l, p) ; (m, p) ; (n, p) ; (r, l) ; (r, m) ; (q, l) ; (q, m) ; (q, n) ; (s, m) ; (s, n) ;
- iii) A, C, B ; B, E, G ; H, F, G ; A, D, F ; C, D, H ;
- iv) s, r, q, m ; s, p, n ;
- v) D ; G ;
- vi) r and n intersect at F .

3. In Fig. 4.42 name all rays with initial points as A , B and C respectively.

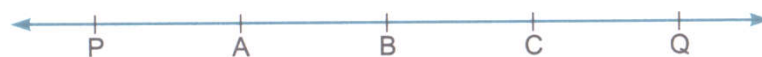


Fig. 4.42

- i) Is ray \vec{AB} different from ray \vec{AC} ?
- ii) Is ray \vec{BA} different from ray \vec{CA} ?
- iii) Is ray \vec{CP} different from ray \vec{CQ} ?

\vec{AP} , $(\vec{AB}$ or \vec{AC} or $\vec{AQ})$, $(\vec{BP}$ or $\vec{BA})$, $(\vec{BC}$ or $\vec{BQ})$, $(\vec{CP}$ or \vec{CA} or $\vec{CB})$, \vec{CQ} .

- i) No
- ii) No
- iii) Yes

4. From Fig. 4.43, write concurrent lines and their points of concurrence.

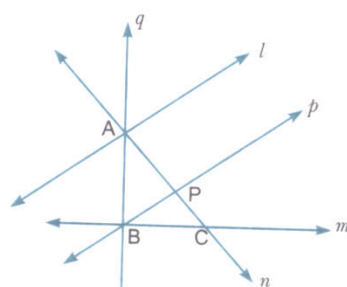


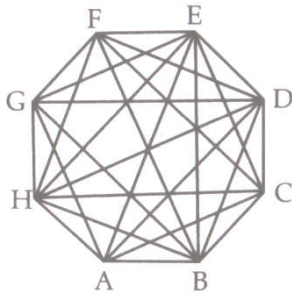
Fig. 4.43

In Figure there are two points of concurrence: point A and point B .
 Concurrent lines passing through point A are n , q and l .
 Concurrent lines passing through point B are q , m and p .

I. Value Based Questions

1. i) Draw a polygon ABCDEFGH and name all the sides, adjacent sides and vertices as well as the diagonals of the polygon

ii) Define circle



i)

Sides: AB, BC, CD, DE, EF, FG, GH, HA

Adjacent sides: (AB, BC), (BC, CD), (CD, DE), (DE, EF), (EF, FG), (FG, GH), (GH, HA), (HA, AB)

Vertices: A, B, C, D, E, F, G, H

Diagonals: AC, AD, AE, AF, AG, BD, BE, BF, BG, CH, BH, CE, CG, DF, DH, EG, EH, FH, DC

ii) Circle is the path of a point moving at the same distance from a fixed point, the fixed point is the centre O.



Next Generation School