

Basic Geometrical Ideas

Worksheet 1 (Points, Line Segments, Lines and Rays)

1 Multiple choice questions

- (i) Simplest of all geometrical figures which has no size but has position, is \rightarrow (c)
- (a) line (b) line segment (c) point (d) space
- (ii) A countless collection of points, which extend infinitely in two opposite directions, is called a \rightarrow line
- (a) line (b) place (c) line segment (d) point
- (iii) A countless collection of points, which is a part of line with two end points, is \rightarrow line segment
- (a) line (b) line segment (c) ray (d) point
- (iv) The number of end points in a line segment is \rightarrow two
- (a) three (b) none (c) two (d) one
- (v) A ray OP is symbolically written as \rightarrow \overrightarrow{OP}
- (a) \overline{OP} (b) OP (c) \overrightarrow{OP} (d) None of these

2 State whether the statements given below are true or false.

- (i) A line segment AB is symbolically written as \overline{AB} .
- (ii) A point is represented by a numeral.
- (iii) A line has no end point.
- (iv) A line segment is determined by two points in a plane.
- (v) Intersecting lines never cross each other.
- (vi) Parallel lines always meet each other.

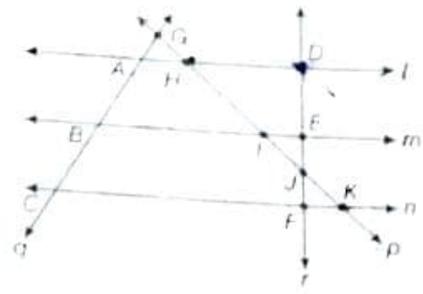
of false
false
true
true
false
false

3 Fill in the blanks

- (i) A line segment \overline{AB} is written as \overline{AP} .
- (ii) A geometrical figure which determines a location but has length, breadth and thickness is point.
- (iii) A line segment has a fixed length.

- (iv) From a given point, infinite rays can be drawn.
- (v) \overrightarrow{AB} and \overrightarrow{BA} denote the different rays.
- (vi) A ray has infinite length.
- (vii) \overline{AB} and \overline{BA} denote the same line segments.
- (viii) \overleftrightarrow{AB} and \overleftrightarrow{BA} denote the same lines.

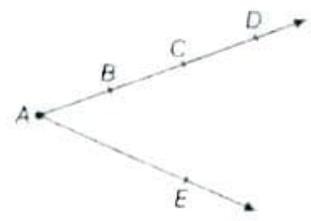
4 Consider the figure given below and answer the questions that follow.



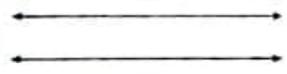
- (i) Write the name of all pairs of parallel lines. $\rightarrow \overleftrightarrow{l} \parallel \overleftrightarrow{m} \parallel \overleftrightarrow{n} \parallel \overleftrightarrow{r}$
- (ii) Write the name of four pairs of intersecting lines. $\rightarrow \overleftrightarrow{l} \cap \overleftrightarrow{p}, \overleftrightarrow{m} \cap \overleftrightarrow{p}, \overleftrightarrow{n} \cap \overleftrightarrow{p}, \overleftrightarrow{l} \cap \overleftrightarrow{q}$
- (iii) Write the name of point of intersection of lines m and p . $\rightarrow H$
- (iv) Write the name of point of intersection of lines l and r . $\rightarrow D$
- (v) Write the name of point of intersection of lines m and r . $\rightarrow E$

5 Short answer type questions

- (i) Various rays in the following figure are \overrightarrow{AD} , \overrightarrow{BD} , \overrightarrow{CD} and \overrightarrow{AE} .

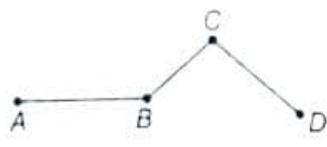


(ii) Look at the given figures and write, whether the lines are intersecting or parallel or both.

(a)  Parallel

(b)  Intersecting

- (iii) Various line segments in the following figure are \overline{AB} , \overline{BC} and \overline{CD} .



Worksheet 2 (Curves, Polygons and Angles)

1 Choose the correct answer and fill in the blanks.

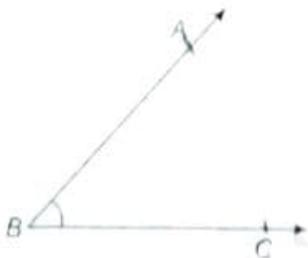
- (i)  *closed* curve [Closed/Open]
- (ii)  *Not simple* curve [Simple/Not simple]
- (iii)  *simple closed* curve [Simple closed/Not simple closed]
- (iv)  *simple closed* figure [Simple closed / Not simple closed]
- (v)  *Not simple closed* figure [Simple closed / Not simple closed]

2 State whether the statements given below are true or false.

- (i) A drawing which is made without lifting the pencil, is called curve. *True*
- (ii) A closed curve is a curve whose ends are open. *False*
- (iii) A polygon is a closed figure which is entirely made of curves. *True*
- (iv) The end points on the same side of a polygon are called adjacent vertices. *True*
- (v) Sides are the line segments which form any polygon. *True*

3 Short answer type questions

(i) Name the vertex and the arms of $\angle ABC$, in the figure below.



Vertex = A, B, C
Arms = BA, BC

Look at the given polygon and fill in the blanks.



- (a) The vertices of the polygon are A , B and C .
- (b) The sides of the polygon are AB , BC and CA .
- (c) The points P and Q are in the interior of the polygon.

Look at the given figure and fill in the blanks.



- (a) The vertices of given polygon are A , B , C and D .
- (b) The sides of given polygon are AB , BC , CD and DA .
- (c) The pair of adjacent vertices of the polygon are AB , BC , CD and DA .
- (d) The adjacent sides of the polygon are (AB, BC) , (BC, CD) , (CD, DA) and (DA, AB) .
- (e) AC and BD are diagonals of polygon.
- (f) Draw rough diagrams of two angles such that they have
 - (a) Two points in common
 - (b) Three points in common
 - (c) One ray in common
 - (d) One point in common

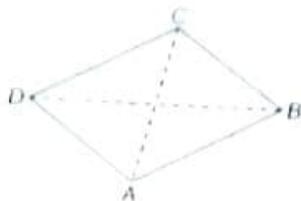
Worksheet 3 (Triangles, Quadrilaterals and Circles)

1. Fill in the blanks.

- (i) A polygon having the least number of sides, is triangle.
- (ii) A triangle has 3 pairs of adjacent sides.
- (iii) A simple closed figure bounded by four line segments, is called quadrilateral.
- (iv) A quadrilateral has 4 angles.
- (v) A quadrilateral has 4 vertices.
- (vi) All points in the plane of a quadrilateral are divided into 2 parts.
- (vii) A quadrilateral has 2 diagonals.
- (viii) The diagonals of the quadrilateral PQRS are PR and QS.
- (ix) Interior region of a circle enclosed by an arc and a pair of radii is called sector of the circle.
- (x) The end points of a chord lie on circumference.

- (xii) A radius is a line segment whose one end point lies on the centre and other on the circumference.
- (xiii) The part of the plane consisting of the circle and its interior is called the disk region.
- (xiv) An area bounded by a chord and an arc is called segment.
- (xv) The total boundary length of a circle is called circumference.
- (xvi) The number of chords of a circle is infinite.
- (xvii) Half part of a circle having diameter as part of its boundary, is semicircle.
- (xviii) A diameter of a circle divides it into two equal parts.

2 Look at the given figure and fill in the blanks.



- (i) The line segments AB and BC are sides of the quadrilateral $ABCD$.
- (ii) The points A and C are vertices of the quadrilateral $ABCD$.
- (iii) \overline{AB} and \overline{CD} is a pair of opposite sides of the quadrilateral $ABCD$.
- (iv) $\angle A$ and $\angle C$ are opposite angles in the quadrilateral $ABCD$.
- (v) $\angle C$ and $\angle D$ are adjacent angles in the quadrilateral $ABCD$.
- (vi) \overline{AC} and \overline{BD} are diagonals of the quadrilateral $ABCD$.
- (vii) $\angle B$ and $\angle D$ are opposite angles in the quadrilateral $ABCD$.
- (viii) \overline{AB} and BC is a pair of adjacent sides of the quadrilateral $ABCD$.
- (ix) \overline{AD} and BC is a pair of opposite sides of the quadrilateral $ABCD$.
- (x) $\angle A$, $\angle C$ and $\angle B$, $\angle D$ are two pair of opposite angles of the quadrilateral $ABCD$.

3 From the figure identify.

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

4 Is every diameter of a circle also a chord?

SUMMATIVE ASSESSMENT

BASED ON COMPLETE CHAPTER

1 Multiple choice questions

(1 mark each)

(i) Which of the following is an open curve?



(ii) In the given figure, the number of diagonals is



(a) 9

(b) 18

(c) 27

(d) 36

(iii) In the given figure, $\angle XYZ$ cannot be written as



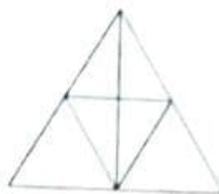
(a) $\angle Y$

(b) $\angle ZXY$

(c) $\angle ZYX$

(d) $\angle XYP$

(iv) The number of triangles in the given figure is



(a) 10

(b) 12

(c) 13

(d) 14

(v) Which of the following is not an example of parallel lines?

(a) Opposite edges of a book

(b) Beam of light from a light house

(c) Bars on ladder

(d) Tracks of a railway line

2 Choose the correct answer and fill in the blanks

(1 mark each)

(i) The maximum number of points of intersection of two lines is _____.

[one/two/three]

(ii) The maximum number of points of intersection of three lines is _____.

[one/two/three]