ATOMIC ENERGY EDUCATION SOCIETY

CLASS 6 MATHEMATICS WORKSHEET - BASIC GEOMETRICAL IDEAS

Class 06 - Mathematics

Section A

1. One of the acute angle of a right triangle is 75⁰. Find the other acute angle. **[1]**

    a) 25⁰
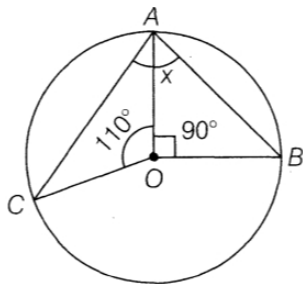
    b) 15⁰

    c) 35⁰

    d) 45⁰

2. A _____ contains a countless number of points. **[1]**

    a) point

    b) line segment

    c) ray

    d) line

3. PQ is a line segment with a length of 20 units. R is a point on PQ such that PR is $\frac{3}{4}$ of PQ. Find the measures of PR and RQ. **[1]**
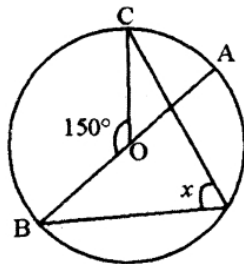
    a) 14 units and 4 units

    b) 15 units and 5 units

    c) 14 units and 6 units

    d) 13 units and 7 units

4. If O is the centre of the circle, the value of x in the adjoining figure, is **[1]**

    a) 80⁰

    b) 50⁰

    c) 60⁰

    d) 70⁰

5. In the given figure, O is the centre of circle and AB is the diameter of circle, if ∠COB = 150⁰, then the value of x is: **[1]**

    a) 75⁰

    b) 30⁰

    c) 80⁰

    d) 45⁰

6. How many lines can pass through two given points? **[1]**
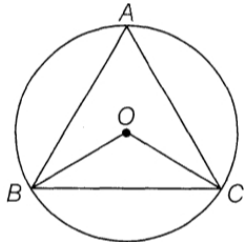
a) 3   b) 2

c) 4   d) 1

7. An equilateral $\triangle$ABC is inscribed in a circle with centre O. Then, $\angle$BOC is equal to **[1]**

     a) 180º   b) 160º

     c) 75º   d) 120º

8. The meeting point of a pair of sides is called a _____. **[1]**

     a) point of contact   b) angle

     c) vertex   d) edge

9. Which among the following is the angle which is triple of its supplement? **[1]**

     a) 110º   b) 135º

     c) 120º   d) 150º

10. Which one of the following figures is an example of open curve? **[1]**

a)

b)

c)

d)

Section B

11. State true or false: **[1]**

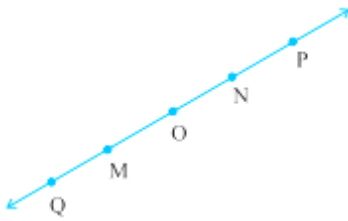   A horizontal line and a vertical line always intersect at right angles.

12. State true or false: **[1]**

    A line with definite length as line segment.

13. State true or false: **[1]**

    Consider the figure of the line $\overline{\text{MN}}$.

    Ray $\overrightarrow{\text{OP}}$ is same as ray $\overrightarrow{\text{OM}}$.
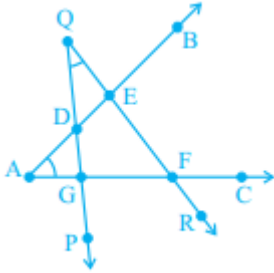
14. Fill in the blanks: **[1]**

Any two sides with a common endpoint are called the _____ sides of the polygon.

15. Fill in the blanks: **[1]**

A line segment has a definite _____.

16. Fill in the blanks: **[1]**

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

17. **Assertion (A):** A line contains a countless number of points. **[1]**

Reason (R): Line extends indefinitely in both directions.

    a) Both A and R are true and R is the correct explanation of A.

    b) Both A and R are true but R is not the correct explanation of A.

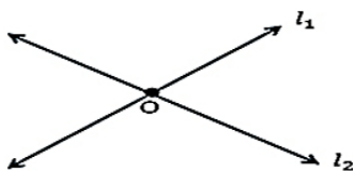   c) A is true but R is false.

    d) A is false but R is true.

18. **Assertion (A):** Given lines are parallel lines. **[1]**
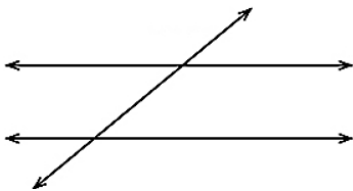
Reason (R): Two or more lines that lie in the same plane and never intersect each other are known as parallel lines

    a) Both A and R are true and R is the correct explanation of A.

    b) Both A and R are true but R is not the correct explanation of A.

    c) A is true but R is false.

    d) A is false but R is true.

19. **Assertion (A):** l_1 and l_2 are intersecting lines. **[1]**

Reason (R): If two lines have one common point, they are called intersecting lines.

    a) Both A and R are true and R is the correct explanation of A.

    b) Both A and R are true but R is not the correct explanation of A.

    c) A is true but R is false.

    d) A is false but R is true.

20. **Assertion (A):** Line segments has two end points. **[1]**

Reason (R): Line segments has indefinite length.

    a) Both A and R are true and R is the correct explanation of A.

    b) Both A and R are true but R is not the correct explanation of A.

    c) A is true but R is false.

    d) A is false but R is true.

**Section C**

21. Draw any polygon and shade it's interior. **[2]**

22. Draw a rough diagram of two angles such that they have four points in common. **[2]**

23. Use the figure to name : **[2]**

  a. Five points

  b. a line

  c. Four rays
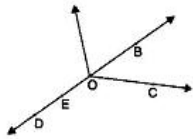
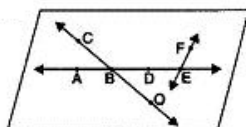24. Name the angles in the given figure. **[2]**
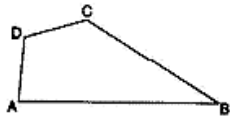
25. Draw a rough diagram of two angles such that they have two points in common. **[2]**

26. Draw a rough diagram of two angles such that they have one point in common. **[2]**

27. In the figure, BCDE is a square and a 3D shape has been formed by joining the point A in space with the vertices B, C, D and E. Name the 3D shape and also its **[2]**
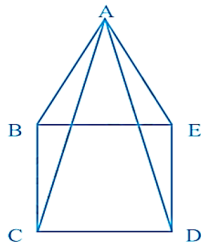
  i. vertices

  ii. edges

  iii. faces

28. Illustrate, if possible, each one of the following with a rough diagram : **[2]**

  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.

29. Use the figure to name : **[2]**

  a. Line containing point E.

  b. Line passing through A.

  c. Line on which O lies.

30. Draw a rough diagram of two angles such that they have one ray in common. **[2]**
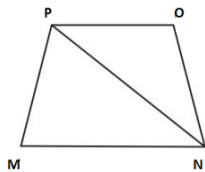
Section D

31. Illustrate, if possible, each one of the following with a rough diagram: **[3]**

    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.

32. Give three examples from your environment of: **[3]**

    i. Points
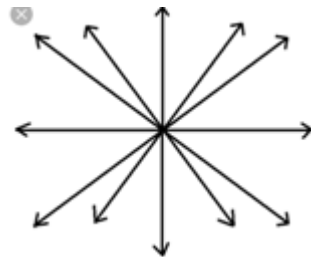
    ii. A portion of a line

    iii. Plane surfaces

33. How many angles are formed in the given figure? Name them. **[3]**
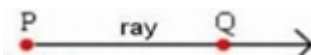

34.   a. How many points does the line given below contain? **[3]**

   b. How many lines can be drawn through a given point?

   c. What is the starting point of a ray PQ?
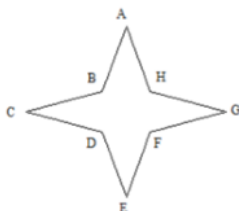

35. Draw rough diagrams to illustrate the following: **[3]**

    i. Open curve

    ii. Closed curve.

Section E

36. **Write:** **[5]**

   a. 8 pairs of adjacent side - _____.
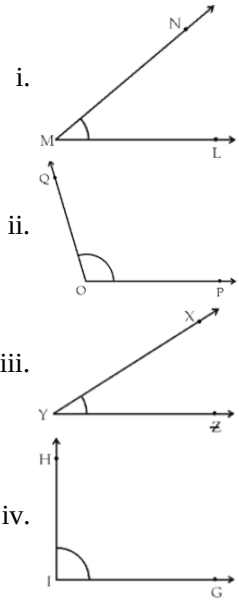
   b. 8 pairs of adjacent vertices - _____.

37. Which of the following are open, closed and simple closed curves? **[5]**

   i.

ii.

iii.

iv.

v.

vi.

38. Write arms and vertices of the angles given below: **[5]**

i.

ii.

iii.

iv.

Section F

39. **Read the text carefully and answer the questions:** **[5]**

Raju takes a colour paper and doodled them. The pictures that are results of his doodling are called curves.

Fig 1

Fig 2

Fig 3

Fig 4

Fig 5

Fig 6
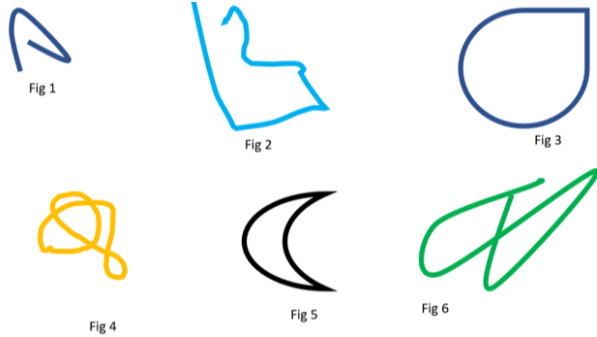
(i) The interior of a curve together with its boundary is called its _____.

(ii) Identify open curves from above picture.

a) Fig 3 & 4   b) Fig 1 & 2

c) Fig 1 & 3   d) Fig 4 & 5

(iii)   Identify closed curves from above picture.

      a) Fig 3, 4, 5 & 6   b) Fig 1, 2, 3 & 4

      c) Fig 3 & 5   d) Fig 4 & 6

(iv)   Identify simple curves from the above picture.

      a) Fig 4, 5 & 6   b) Fig 1, 2, 3 & 5

      c) Fig 1 & 2   d) Fig 1, 2, 3 & 4

(v)   In Mathematics, a curve can be straight.

      a) True   b) False

40.   **Read the text carefully and answer the questions:**   **[5]**

Let us look at Deepak's study table. The top ABCD is flat. He asks his sister Geeta, is she able to see some points and line segments on the table top. She says "yes" then he asks her some questions related to points, parallel lines and line segments.
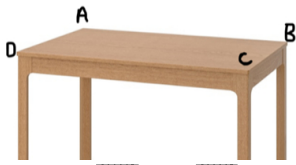
(i) $\overline{AB}$ and $\overline{BC}$ intersect at the point _____.

(ii)   Write one set of parallel lines

      a) Parallel lines do not exist   b) $\overline{AB}$ and $\overline{AD}$

      c) $\overline{AC}$ and $\overline{BC}$ d) $\overline{AB}$ and $\overline{CD}$

(iii) $\overline{AD}$ and $\overline{BC}$ are

      a) Parallel lines   b) Perpendicular lines

      c) Adjacent lines   d) Intersecting lines

(iv)   Write a pair of intersecting lines at a point A

      a) $\overline{BC}$ and $\overline{BD}$ b) $\overline{AB}$ and $\overline{CD}$

      c) $\overline{AC}$ and $\overline{BD}$ d) $\overline{AB}$ and $\overline{AD}$

(v)   Parallel lines do not meet.

      a) True   b) False