Solution

CLASS 6 MATHEMATICS WORKSHEET - BASIC GEOMETRICAL IDEAS

Class 06 - Mathematics

Section A

1.
   (b) 15°

   Explanation: 15°

2.
   (d) line

   Explanation: A line is called the set of infinite (countless) number of points.

3.
   (b) 15 units and 5 units

   Explanation: PR is $\frac{3}{4}$ of PQ i.e 20 units

   PR = $\frac{3}{4} \times 20$ = 15 units

   RQ = 20 - 15 = 5 units

4. **(a)** 80°

   Explanation: $\angle COB = 360^o - (\angle COA + \angle BOA)$

   $= 360^o - (110^o + 90^o)$

   $= 160^o$

   $\therefore$ x = $\frac{1}{2} \times \angle COB$ [by theorem]

   $= \frac{1}{2} \times 160^o = 80^o$

5. **(a)** 75°

   Explanation: $\angle BOC = 150^o$

   $\angle x = \frac{1}{2} \angle BOC$

   $\angle x = \frac{1}{2} \times 150^o$

   $\angle x = 75^o$

6.
   (d) 1

   Explanation: One and only one line can be pass through two given points.

7.
   (d) 120°

   Explanation: We know that, the angle subtended by an arc at the centre of a circle is double the angle subtended by it any point on the remaining part of the circle.

   $\angle BOC = 2\angle A$

   $= 2 \times 60^o$

   $\therefore \angle BOC = 120^o$

8.
   (c) vertex

   Explanation: When two sides meet at a point and form a corner, that point is called a vertex.

9.
   (b) 135°

   Explanation: 135°

10.

(d)

Explanation:

<div align="center">Section B</div>

11. **(a)** True
    Explanation: True

12. **(a)** True
    Explanation: True

13.

 (b) False
 Explanation: False.
 We can see both the rays are starting from the same point but extending in opposite directions, So they can't be same.

14. 1. Adjacent

15. 1. Length

16. 1. Four
    2. 4

17.

 (b) Both A and R are true but R is not the correct explanation of A.
 Explanation: Several points together form a line. Therefore, a line contains infinite points.
 A line is an idea that it should be straight and that it should extend indefinitely in both directions.
 Here both (A) and (R) is a correct statements but (R) is not a correct reason for (A).

18.

 (d) A is false but R is true.
 Explanation: Lines that do not meet each other at any point are called parallel lines.
 But Given lines are not parallel lines because one line intersects given two lines.
 So, (A) is a false statement but (R) is a true statement.

19. **(a)** Both A and R are true and R is the correct explanation of A.
    Explanation: Lines that have a common point in them are the intersecting lines
 l_1 and l_2 have one common point. So, (R) is the correct reason for (A).

20.

 (c) A is true but R is false.
 Explanation: A line segment is part of a line that is bounded by two distinct endpoints and contains every point on the line between its endpoints. So, Line segments have two end points. This means line segments have definite lengths.
 So, (A) is a true but (R) is a false statement.

<div align="center">Section C</div>

21.
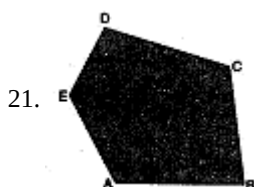
22. Following figure shows angles with four points in common:
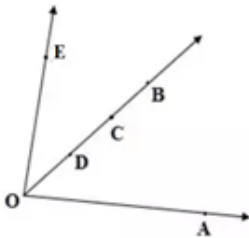
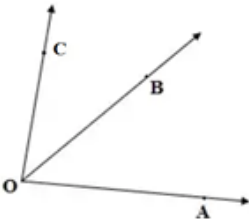∠EOB and ∠AOB have four points in common i.e. B, C, D and O.

23.   a. O, B, C, D, E
   b. $\overleftrightarrow{DB}$
   c. $\overrightarrow{OB}, \overrightarrow{OC}, \overrightarrow{OE}, \overrightarrow{OD}$
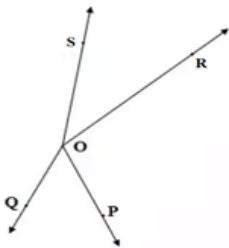
24. ∠A or ∠DAB; ∠B or ∠ABC; ∠C or ∠BCD; ∠D or ∠CDA.

25. Following diagram shows angles with two points in common:

∠AOB and ∠COB has two points in common i.e. O and B.

26. Following figure shows angles with one point in common-

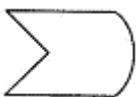∠POQ and ∠ROS has one point in common i.e., O.

27. The 3D shape formed is a square pyramid.

   i. Vertices are A, B, C, D and E.

   ii. Edges are AB, AC, AD, AE, BC, CD, DE, and EB.

   iii. Faces are square BCDE and triangles ABC, ACD, ADE, and ABE.
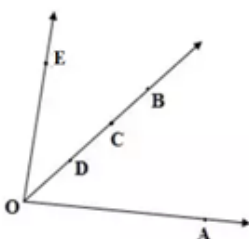
28.   a.

   b.

   c. Not possible.

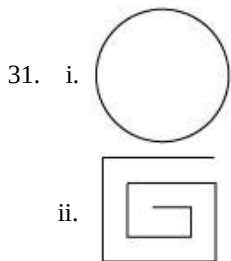29.   a. $\overleftrightarrow{EF}$
   b. $\overleftrightarrow{AE}$
   c. $\overleftrightarrow{OC}$

30. Following figure shows angles with one ray in common:

∠EOB and ∠BOA has one common ray i.e. OB.

31. i.

ii.

iii. This is not possible as the polygon has at least three sides in it.

32. i. The three examples of points are:

a. Pinhole on the map

b. Two walls and floor meeting at the corner

c. The Period at the end of the sentence

ii. The three examples of the portion of a line are:

a. Thin curtain rods

b. Laser beams

c. Stretched power cables

iii. The three examples of plane surfaces are:

a. The surface of a whiteboard

b. Top of a table

c. The Surface of a wall.

33. Six angles are form in the given figure.

∠PMN, ∠NOP, ∠OPN, ∠PNO, ∠MPN, ∠PNM

34. a. two

b. Infinite

c. P

35. i. Open curve: A curve with different starting and end points.

ii. Closed curve: A curve with same starting and end point.

Section E

36. a. Adjacent side: (i) AB, AH (ii) GH,GF (iii) EF,ED (iv) CB, CD (v) BA, BC (vi) HA, HG (vii) FG,FE (viii) DE, DC

b. Adjacent vertices: (i) A,H (ii) H,G (iii) G,F (iv) F,E (v) E,D (vi) D, C(vii) C,B (viii) B, A

37. Open curves: (i), (iv) and (vi)

Closed curves: (ii), (iii) and (v)

Simple closed: (iii) and (v)

38. For angle (i): arms are ML and MN. Vertex is M.

For angle (ii): arms are OP and OQ. Vertex is O.

For angle (iii): arms are YX and YZ. Vertex is Y.

For angle (iv): arms are IH and IG. Vertex is I.

Section F

39. **Read the text carefully and answer the questions:**

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) 1. Region

(ii) **(b)** Fig 1 & 2
Explanation: Fig 1 & 2

(iii) **(a)** Fig 3, 4, 5 & 6
**Explanation:** Fig 3, 4, 5 & 6

(iv) **(b)** Fig 1, 2, 3 & 5
Explanation: Fig 1, 2, 3 & 5

(v) **(a)** True
Explanation: True

40. **Read the text carefully and answer the questions:**

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.
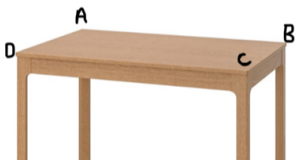
(i) 1. B

(ii) **(d)** $\overline{AB}$ and $\overline{CD}$
Explanation: $\overline{AB}$ and $\overline{CD}$

(iii) **(a)** Parallel lines
Explanation: Parallel lines

(iv) **(d)** $\overline{AB}$ and $\overline{AD}$
Explanation: $\overline{AB}$ and $\overline{AD}$

(v) **(a)** True
Explanation: True