

NCERT SOLUTIONS

CLASS - 6TH



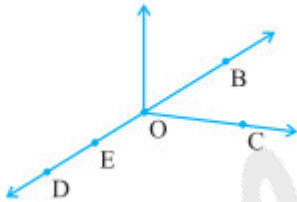
aglasem.com

Class : 6th
 Subject : Maths
 Chapter : 4
 Chapter Name : BASIC GEOMETRICAL IDEAS

Exercise 4.1

Q1 Use the figure to name :

- (a) Five points
- (b) A line
- (c) Four rays
- (d) Five line segments



Answer. (a) The five points are D, E, O, B AND C.

(b) \overline{BD}

(c) \overline{OD} , \overline{OB} , \overline{OC} , \overline{OE}

(d) \overline{DE} , \overline{EO} , \overline{OB} , \overline{OC} , \overline{BE}

Page : 74 , Block Name : Exercise 4.1

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

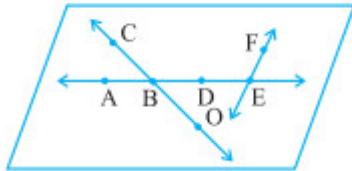


Answer. \overline{AB} , \overline{BC} , \overline{CD} , \overline{BA} , \overline{CB} , \overline{DC} , \overline{AD} , \overline{DA} , \overline{AC} , \overline{CA} , \overline{BD} , \overline{DB}

Page : 74 , Block Name : Exercise 4.1

Q3 Use the figure to name :

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



Answer. (a) \overline{AE}

(b) \overline{AE}

(c) \overline{OC}

(d) \overline{OC} and \overline{AE} , \overline{AE} and \overline{EF}

Page : 75 , Block Name : Exercise 4.1

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

Answer. (a) Infinite number of lines can pass through a single point.

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

Page : 75 , Block Name : Exercise 4.1

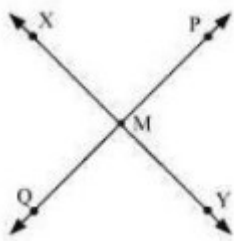
Q5 Draw a rough figure and label suitably in each of the following cases:

- Point P lies on \overline{AB}
- \overline{XY} and \overline{PQ} intersect at M.
- Line l contains E and F but not D.
- \overline{OP} and \overline{OQ} meet at O.

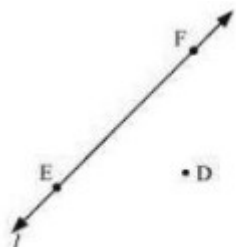
Answer. (a)



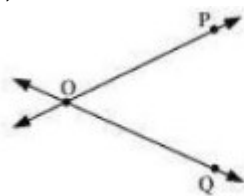
(b)



(c)

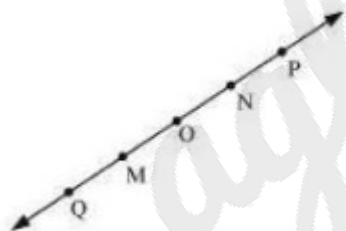


(d)



Page : 75 , Block Name : Exercise 4.1

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



- Q, M, O, N, P are points on the line \overline{MN} .
- M, O, N are points on a line segment \overline{MN} .
- M and N are end points of line segment \overline{MN} .
- O and N are end points of line segment \overline{OP} .
- M is one of the end points of line segment \overline{QO} .
- M is point on ray \overline{OP} .
- Ray \overline{OP} is different from ray \overline{QP} .
- Ray \overline{OP} is same as ray \overline{OM} .
- Ray \overline{OM} is not opposite to ray \overline{OP} .
- O is not an initial point of \overline{OP} .

(k) N is the initial point of \overline{NP} and \overline{NM} .

Answer. (a) True

(b) True

(c) True

(d) False

(e) False

(f) False

(g) True

(h) False

(i) False

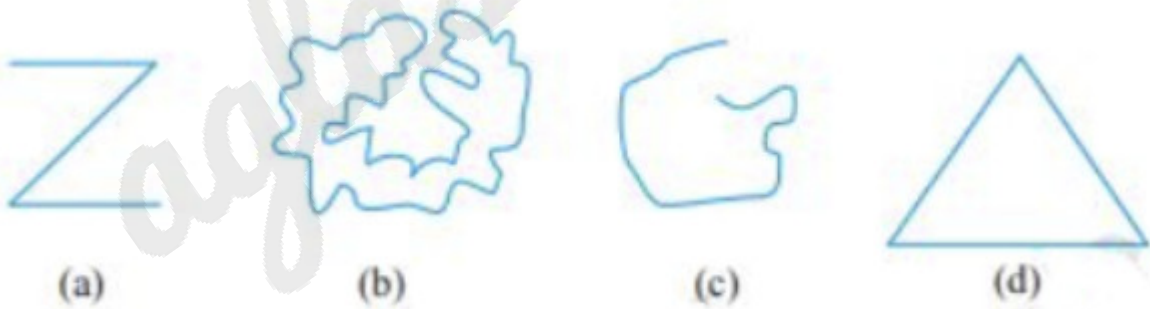
(j) False

(k) True

Page : 75 , Block Name : Exercise 4.1

Exercise 4.2

Q1 Classify the following curves as (i) Open or (ii) Closed.



Answer. (a) Open

(b) Closed

(c) Open

(d) Closed

(e) Closed

Page : 78 Block Name : Exercise 4.2

Q2 Draw rough diagrams to illustrate the following :

(a) Open curve (b) Closed curve.

Answer. (a) Open curve



(b) Closed curve



Page : 78 Block Name : Exercise 4.2

Q3 Draw any polygon and shade its interior.

Answer.



Page : 78 Block Name : Exercise 4.2

Q4 Consider the given figure and answer the questions : (a) Is it a curve? (b) Is it closed?



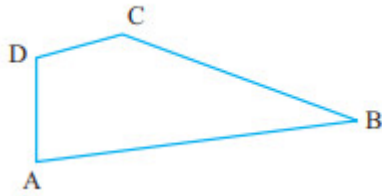
Answer. (a) Yes

(b) Yes

Page : 78 Block Name : Exercise 4.2

Exercise 4.3

Q1 Name the angles in the given figure.

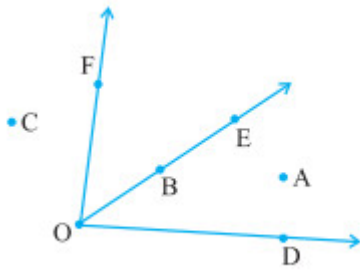


Answer. $\angle BAD, \angle ADC, \angle DCB, \angle CBA$

Page : 80 , Block Name : Exercise 4.3

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 $\angle EOF$



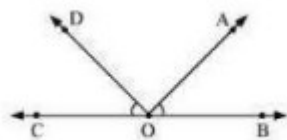
- Answer. (a) A
 (b) C, A, D
 (c) B, E, O, F

Page : 80 , Block Name : Exercise 4.3

Q3 Draw rough diagrams of two angles such that they have

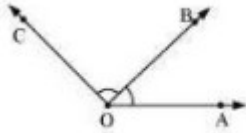
- (a) One point in common.
- (b) Two points in common.
- (c) Three points in common.
- (d) Four points in common.
- (e) One ray in common.

Answer. (a)



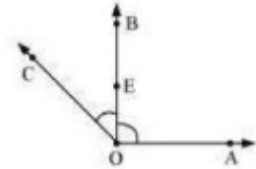
$\angle COD$ and $\angle AOB$ have point O in common.

(b)



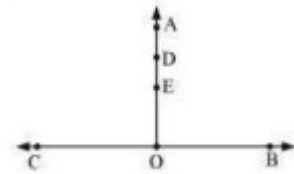
$\angle AOB$ and $\angle BOC$ have points O and B in common.

(c)



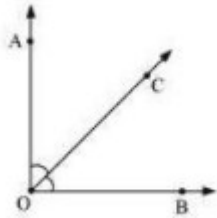
$\angle AOB$ and $\angle BOC$ have points O, E, B in common.

(d)



$\angle BOA$ and $\angle COA$ have points O, E, D, A in common.

(e)

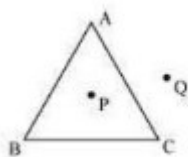


Ray \overline{OC} is common between $\angle BOC$ and $\angle AOC$

Page : 80 , Block Name : Exercise 4.3

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?

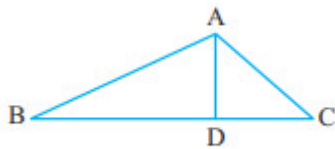


Answer.

Point A lies on the given $\triangle ABC$.

Page : 81 , Block Name : Exercise 4.4

- 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?



Answer. (a) We know that, a triangle is a three sided polygon. So, three triangles in the given figure are as follows:

(i) $\triangle ABD$ (ii) $\triangle ADC$ (iii) $\triangle ABC$

(b) An angle is made up of two rays starting from a common endpoint here the names of seven angles are as follows:

(i) $\angle BAD$ (ii) $\angle BAC$ (iii) $\angle CAD$ (iv) $\angle ABD$ (v) $\angle ACD$ (vi) $\angle ADC$ (vii) $\angle ADB$.

(c) The names of six line segments are as follow :

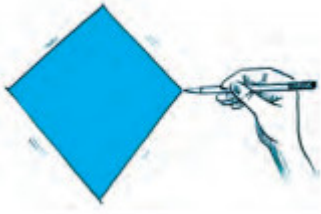
(i) AB (ii) BD (iii) DC (iv) CA (v) AD (vi) BC

(d) From the given figure, it is clear that $\angle B$ is common of $\triangle ABD$ and $\triangle ABC$.

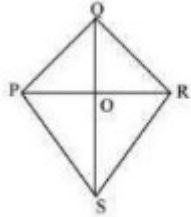
Page : 81 , Block Name : Exercise 4.4

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?



Answer.



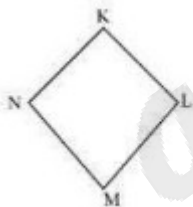
Diagonals are PR and QS. They meet at point O which is in the interior of $\square PQRS$.

Page : 82 , Block Name : Exercise 4.5

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

- two pairs of opposite sides,
- two pairs of opposite angles,
- two pairs of adjacent sides,
- two pairs of adjacent angles.

Answer.

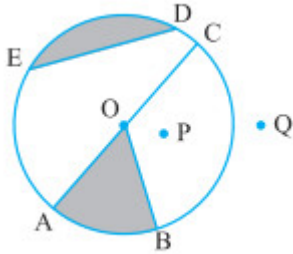


- \overline{KL} , \overline{NM} and \overline{KN} , \overline{ML}
- $\angle KLM$ and $\angle KNM$
 $\angle LKN$ and $\angle LMN$
- \overline{KL} , \overline{KN} and \overline{NM} , \overline{ML}
 \overline{KL} , \overline{LM} and \overline{NM} , \overline{NK}
- $\angle K$, $\angle L$ and $\angle M$, $\angle N$
 $\angle K$, $\angle N$ and $\angle L$, $\angle M$

Page : 82 , Block Name : Exercise 4.5

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

Answer. (a) O

(b) \overline{OA} , \overline{OB} , \overline{OC}

(c) \overline{AC}

(d) \overline{ED}

(e) O, P

(f) Q

(g) AOB (shaded region)

(h) DE (shaded region)

Page : 84 , Block Name : Exercise 4.6

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

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

Answer. (a) Yes. The diameter is the longest possible chord of the circle.

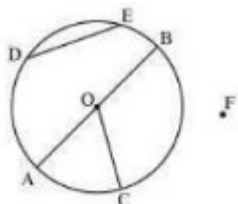
(b) No

Page : 84 , Block Name : Exercise 4.6

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

Answer.



- (a) O
- (b) \overline{OA}
- (c) \overline{AB}
- (d) COA
- (e) DE
- (f) O
- (g) F
- (h) \widehat{AC}

Page : 84 , Block Name : Exercise 4.6

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.

Answer. (a) True. They will always intersect each other at the centre of the circle.
 (b) True.

Page : 84 , Block Name : Exercise 4.6