

NCERT SOLUTIONS - Basic Geometrical Ideas

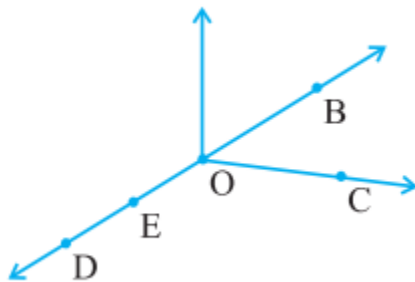
The provided NCERT Solutions for Class 6 Mathematics, focusing on Basic Geometrical Ideas, offer exceptional clarity and provide students with instant clarification for any doubts they may have. These solutions meticulously detail the best approaches for each question, ensuring a comprehensive understanding. By studying these solved questions, students can gain insight into the logic and concepts inherent in geometry.

NCERT SOLUTIONS CLASS 6 MATHS - CHAPTER 4 - Basic Geometrical Ideas:

Exercise 4.1

1. Use the figure to name:

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



Solutions:

(a) The five points are D, E, O, B and C

(b) A line is \overleftrightarrow{BD}

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NCERT Solutions For Class 6

Basic Geometrical Ideas

(c) Four rays are \overrightarrow{OD} , \overrightarrow{OB} , \overrightarrow{OC} and \overrightarrow{OE}

(d) Five line segments are \overline{DE} , \overline{EO} , \overline{OB} , \overline{OC} and \overline{BE}

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



The lines are

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

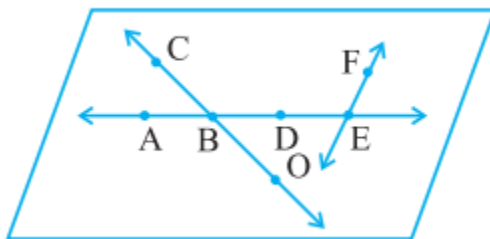
3. Use the figure to name:

(a) Line containing point E.

(b) Line passing through A.

(c) Line on which O lies

(d) Two pairs of intersecting lines.



Solutions:

(a) Line containing point E is \overleftrightarrow{AE}

(b) Line passing through A is \overleftrightarrow{AE}

(c) Line on which O lies is \overleftrightarrow{OC}

(d) Two pairs of intersecting lines are \overleftrightarrow{CO} , \overleftrightarrow{AE} and \overleftrightarrow{AE} , \overleftrightarrow{EF}

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

Solutions:

(a) Countless lines can pass through a given point.

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

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

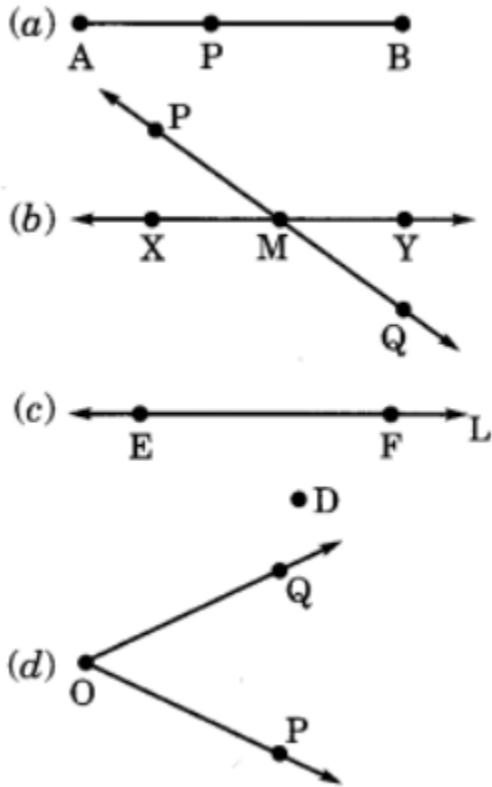
(a) Point P lies on \overline{AB} .

(b) \overleftrightarrow{XY} and \overleftrightarrow{PQ} intersect at M.

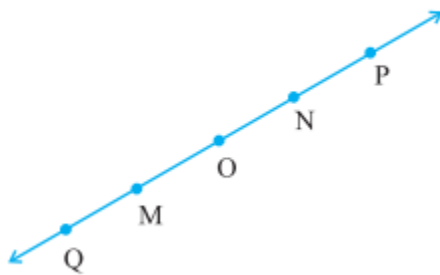
(c) Line l contains E and F but not D.

(d) \overleftrightarrow{OP} and \overleftrightarrow{OQ} meet at O.

Solutions:



6. Consider the following figure of line MN. Say whether following statements are true or false in context of the given figure.



(a) Q, M, O, N, P are points on the line \overleftrightarrow{MN}

(b) M, O, N are points on a line segment \overline{MN}

(c) M and N are end points of line segment \overline{MN}

(d) O and N are end points of line segment \overline{OP}

(e) M is one of the end points of line segment \overline{QO}

(f) M is point on ray \overrightarrow{OP}

(g) Ray

\overrightarrow{OP} is different from ray \overrightarrow{QP} .

(h) Ray \overrightarrow{OP} is same as ray \overrightarrow{OM}

(i) Ray \overrightarrow{OM} is not opposite to ray \overrightarrow{OP}

(j) O is not an initial point of \overrightarrow{OP}

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

Solutions:

(a) True

(b) True

(c) True

(d) False

(e) False

(f) False

(g) True

(h) False

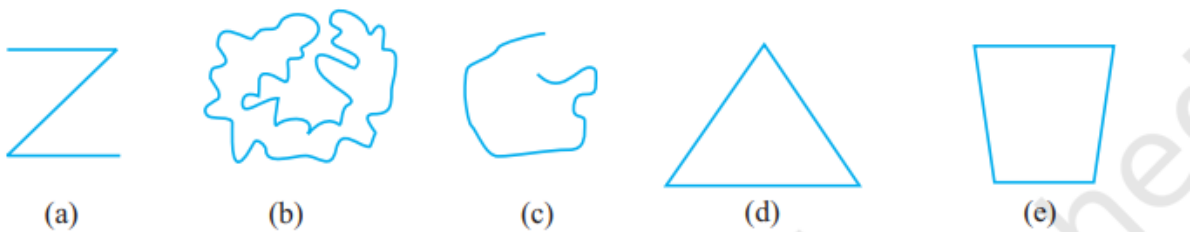
(i) False

(j) False

(k) True

Exercise 4.2

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



Solutions:

(a) The given curve is an open curve

(b) The given curve is a closed curve

(c) The given curve is an open curve

(d) The given curve is a closed curve

(e) The given curve is a closed curve

2. Draw rough diagrams to illustrate the following:

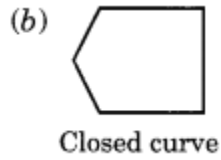
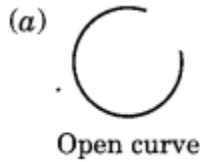
(a) Open curve

(b) Closed curve

Solutions

(a) The below figure is an open curve

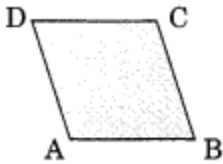
(b) The below figure is a closed curve



3. Draw any polygon and shade its interior.

Solutions:

The below figure is a polygon with a shaded interior.



4. Consider the given figure and answer the questions:

(a) Is it a curve?

(b) Is it closed?



Solutions:

(a) Yes, it is a curve

(b) Yes, it is a closed curve

5. Illustrate, if possible, each one of the following with a rough diagram:

(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.

Solutions:

(a) Required closed curve is a circle.

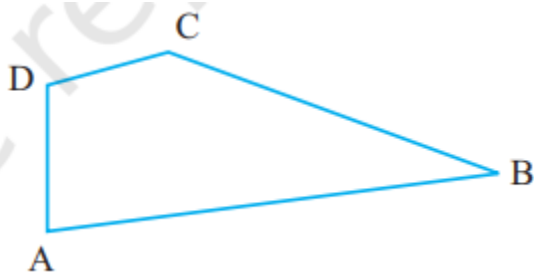
(b) ABCD is an open curve made up of the line segments

\overline{AB} , \overline{BC} and \overline{CD}

(c) A polygon with two sides is not possible.

Exercise 4.3

1. Name the angles in the given figure.



Solutions:

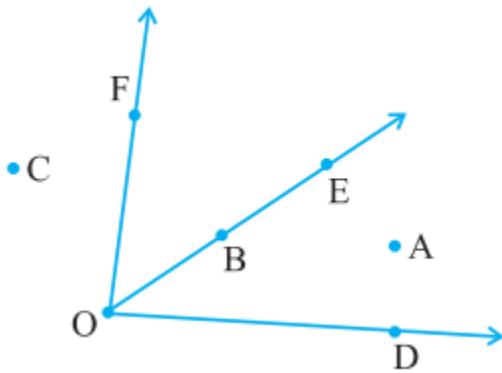
The angles are $\angle DAB$, $\angle ABC$, $\angle BCD$ and $\angle CDA$

2. In the given diagram, name the points(s)

(a) In the interior of $\angle DOE$

(b) In the exterior of $\angle EOF$

(c) On $\angle EOF$



Solutions:

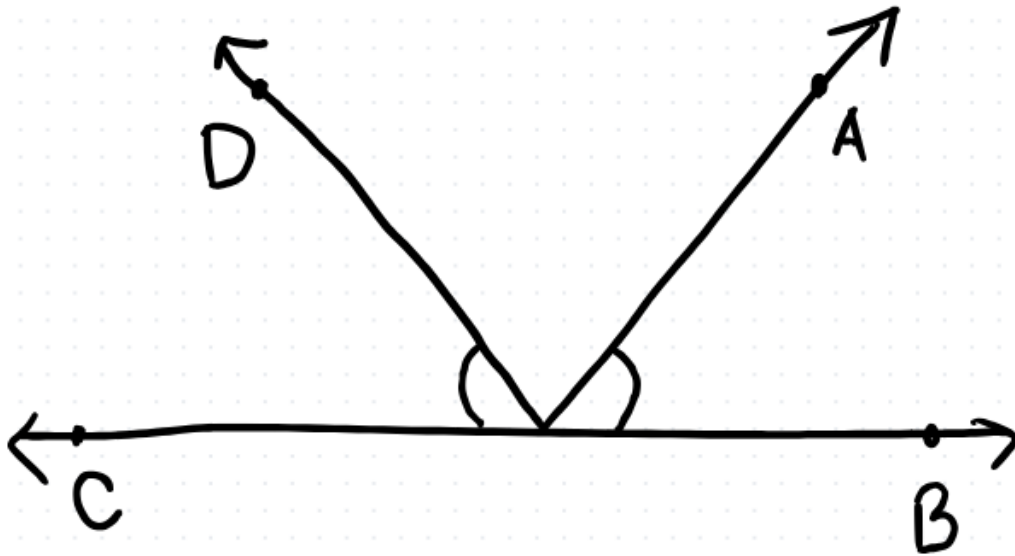
- (a) The point in the interior of $\angle DOE$ is A
- (b) The points in the exterior of $\angle EOF$ is C, A and D
- (c) The points on $\angle EOF$ are E, B, O and F

3. Draw rough diagrams of two angles such that they have

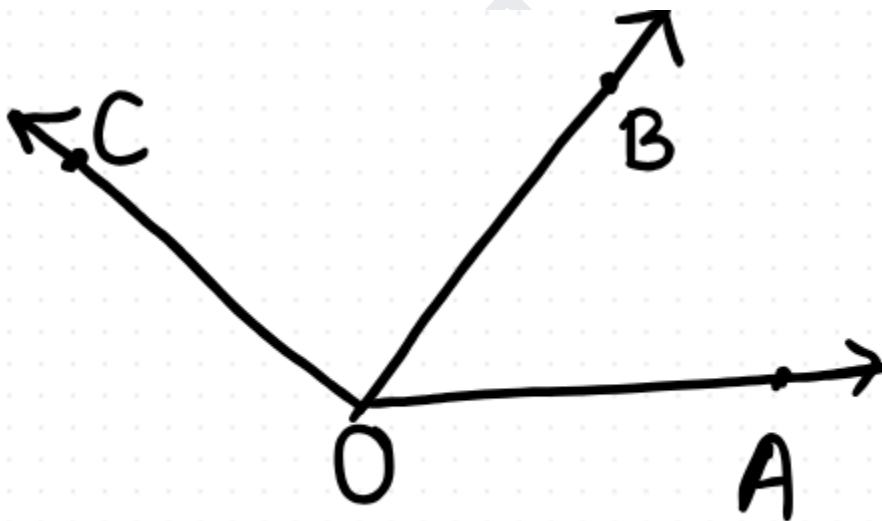
- (a) One point in common**
- (b) Two points in common**
- (c) Three points in common**
- (d) Four points in common**
- (e) One ray in common**

Solutions:

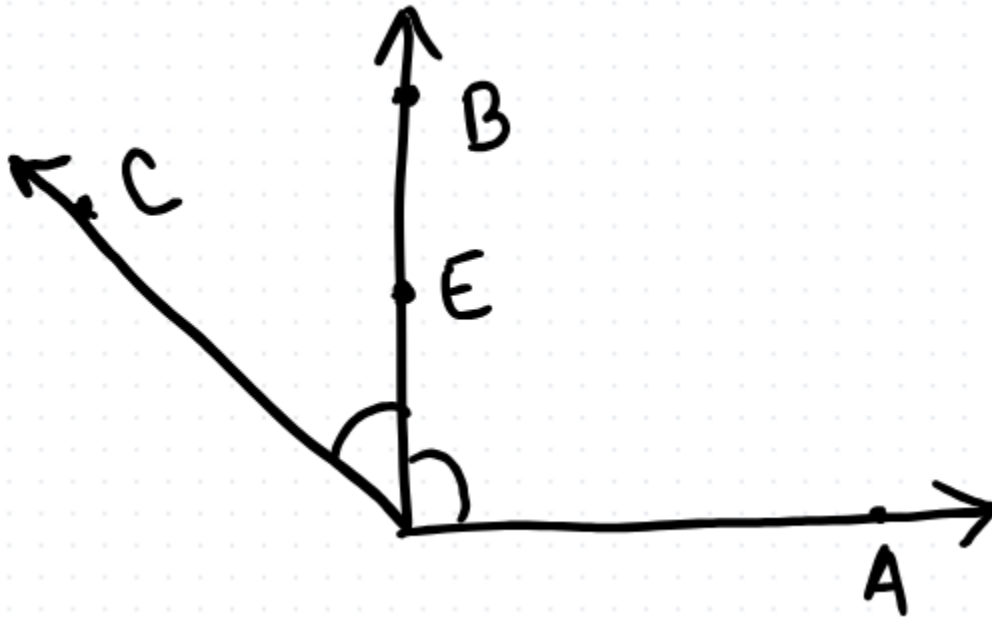
- (a) O is the common point between $\angle COD$ and $\angle AOB$



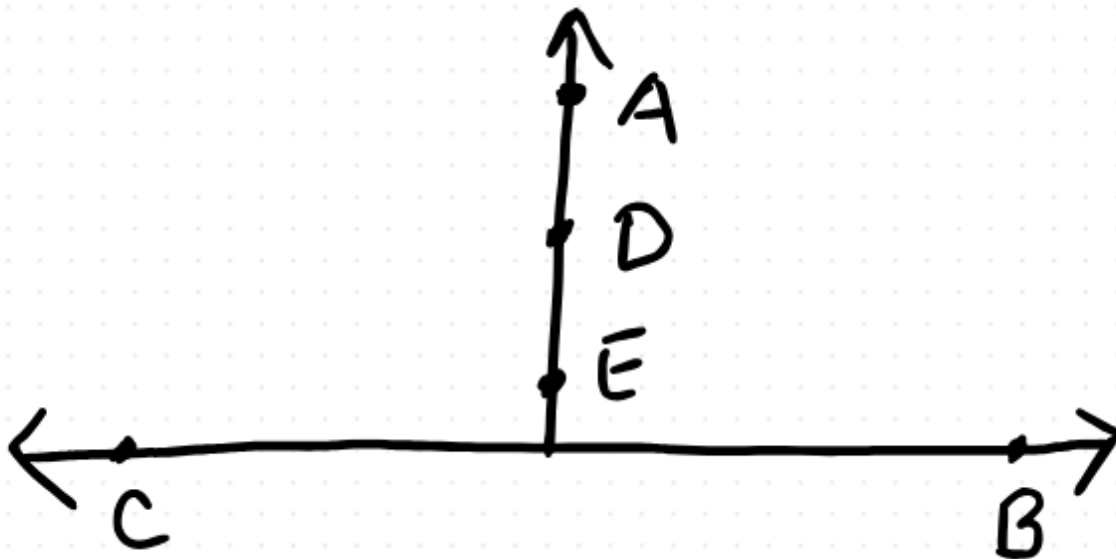
(b) O and B are common points between $\angle AOB$ and $\angle BOC$.



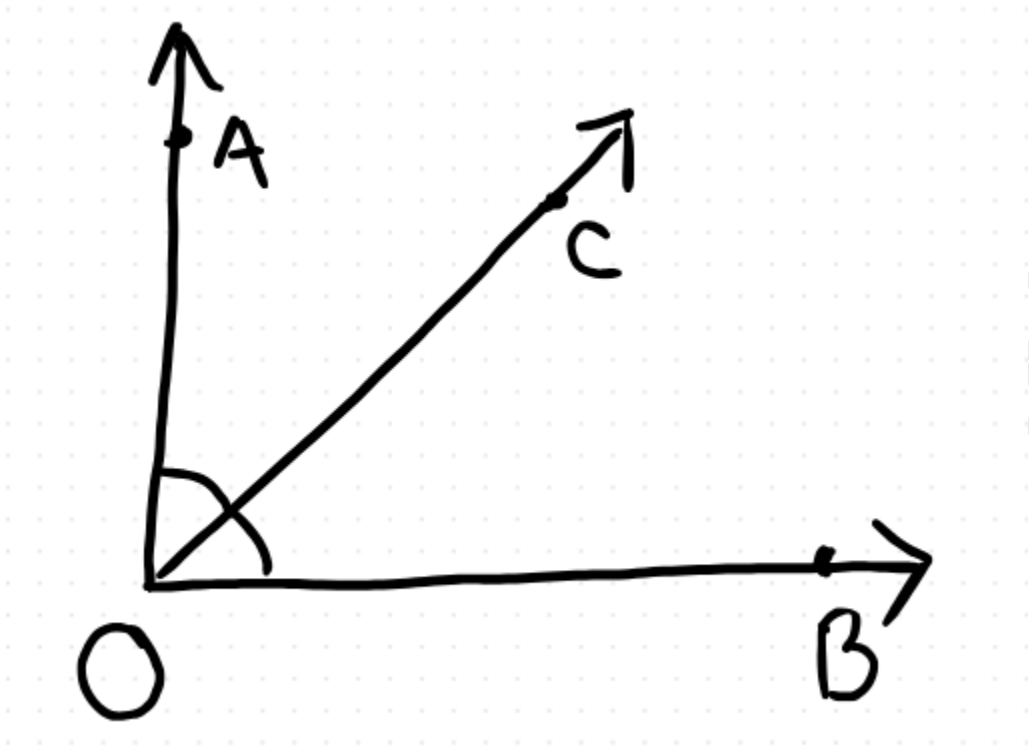
(c) O, E and B are common points between $\angle AOB$ and $\angle BOC$



(d) O, E, D and A are common points between $\angle BOA$ and $\angle COA$



(e) OC is a common ray between $\angle BOC$ and $\angle AOC$



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