Lines and Angles-I

Class 6 Practice Worksheet • Final Revised Edition

Name: _____ Date: _____ Score: _____ / 30

A. Points, Lines, Line Segments and Rays

1. Write whether each represents a point, line, line segment or ray:
a. The edge of a ruler
b. A star seen in the night sky
c. A ray of sunlight travelling from the Sun towards Earth
d. A straight road extending in both directions.

2. Points P, Q, R, S and T lie on the same straight line. How many different ways can you name the line using two of these points?

3. Draw a rough sketch of each:
a. Line AB b. Ray PQ c. Line segment XY d. Point M lying on line ℓ.

4. A line segment AB is 8 cm long. If it is extended beyond A and B in both directions, does its length remain 8 cm? Explain.

5. Give three examples from everyday life that can be considered line segments.

B. Intersecting and Parallel Lines

6. State whether each pair represents parallel lines or intersecting lines:
a. The two opposite edges of a notebook
b. Two roads crossing at a junction
c. The two hands of a clock at 3 o'clock
d. The two rails of a straight railway track.

7. Draw two intersecting lines meeting at P. Also draw two parallel lines named ℓ_1 and ℓ_2.

8. Four sides of a rectangle are named AB, BC, CD and DA.
a. Which pairs of sides intersect?
b. Which pairs of sides are parallel?

9. Can two parallel lines have a common point? Give a reason for your answer.

C. Curves and Polygons

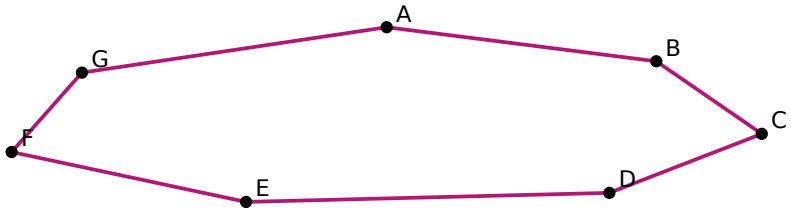
10. Classify each as an open curve or closed curve:
a. A circle b. A semicircular arc c. A triangle d. A wavy line whose two ends do not meet.

11. What is the difference between a simple curve and a curve that crosses itself?

12. Which of the following can be a polygon? Give a reason.
a. A closed figure made entirely of straight line segments
b. A circle
c. An open figure made of straight line segments
d. A closed figure containing both straight and curved parts.

13. Draw a polygon with 3 sides, 5 sides, 7 sides and 8 sides.

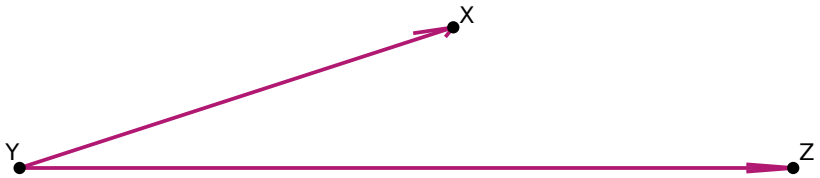
14. A polygon has vertices A, B, C, D, E, F and G in that order.
a. Name two pairs of adjacent vertices.
b. Name two pairs of non-adjacent vertices.
c. Name three sides.
d. Give one possible diagonal.



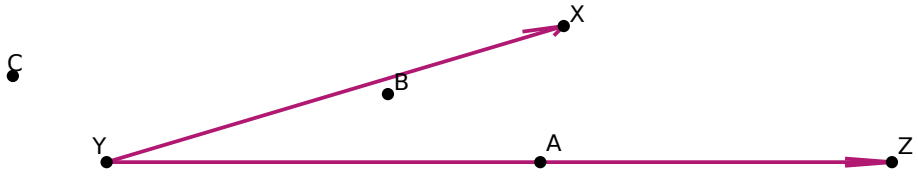
15. A pentagon ABCDE has sides AB, BC, CD, DE and EA. Is AC a side or a diagonal? What about BD? Explain.

D. Angles

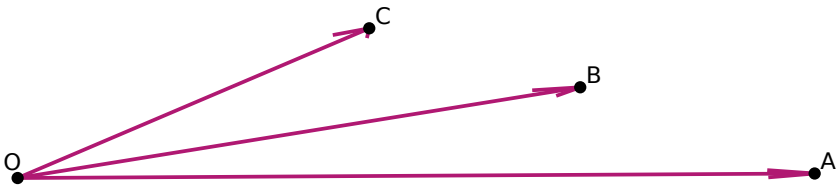
16. In ∠ABC:
a. What is the vertex?
b. Name the two arms.
c. Write another way of naming the same angle.



17. Draw an angle ∠XYZ. Mark one point on one of its arms, one point in its interior and one point in its exterior.

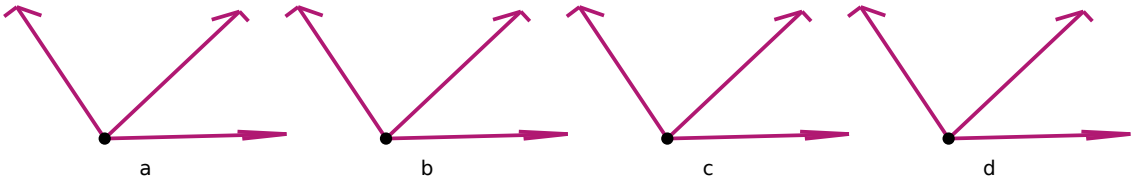


18. Three rays OA, OB and OC start from O, with OB lying between OA and OC.
a. Name the two smaller angles.
b. Name the larger angle between OA and OC that contains OB.
c. Which two smaller angles have a common arm?



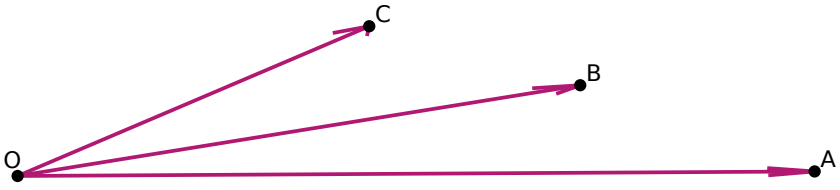
19. Can an angle have arms of different lengths and still have the same size as another angle? Explain using the idea of amount of rotation.

20. For parts (a), (b) and (d), assume the two angles are drawn so that their interiors do not overlap. Which pairs are adjacent angles?
a. ∠ABC and ∠CBD, where BC is the common arm.
b. ∠PQR and ∠RQS, where QR is the common arm.
c. ∠XYZ and ∠XYW, where both angles have the same two arms.
d. ∠LMN and ∠NMP, where MN is the common arm.



E. Think and Draw

21. Draw three rays OA, OB and OC with the same vertex O. Make OB lie between OA and OC. Name all the different angles that can be formed.



22. Draw two angles for each:
a. Two angles whose only common point is a vertex, but which have no common arm.
b. Two adjacent angles with one common arm.
c. Two angles with the same vertex and both arms in common.

23. Three points A, B and C are not on the same straight line.
a. How many different lines can be drawn by joining pairs of these points?
b. How many angles can be formed using A, B and C?
c. Name all the angles.

24. Four points P, Q, R and S are positioned so that no three lie on the same straight line.
a. How many line segments can be formed by joining pairs of points?
b. How many lines can be determined by pairs of points?
c. Draw a rough figure and check your answer.

F. HOTS / Reasoning

25. Riya says: “A line segment and a ray are the same because both are straight.” Do you agree? Give two differences between them.

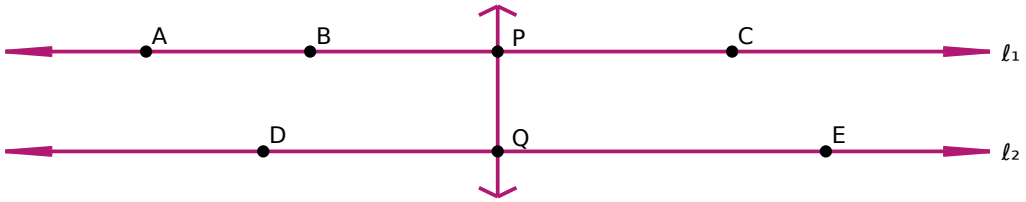
26. Two lines do not meet on the board. Rahul says they are parallel lines. Is Rahul necessarily correct? Explain why we may need to extend the lines to determine whether they intersect.

27. A closed figure is made using six straight line segments. One segment crosses another segment inside the figure. Can this figure be called a polygon according to the definition in this chapter? Explain.

28. Two angles have the same vertex and one common arm, but their interiors overlap. Can they be called adjacent angles? Give a reason.

29. A line has points A, B, C and D marked on it in that order.
a. Name four different line segments.
b. Name two rays starting from B.
c. Are A and D enough to name the line?
d. Can the line be named using points A and B? How should it be written to distinguish the line from the line segment AB?

30. Study the reference diagram below. Then answer:
a. Name the two parallel lines.
b. Name the line that intersects both parallel lines.
c. Name three line segments using the labelled points.
d. Name two rays starting at P.
e. Name one angle at P.



Questions are newly written from the concepts and question styles in the uploaded Maths Xpress Class 6 chapter.