2 LINES AND ANGLES

Figure it Out:

Q1.

- Rihan marked a point on a piece of paper. How many lines can he draw that pass through the point?

Ans. Infinite lines can pass through a point.

- Sheetal marked two points on a piece of paper. How many different lines can she draw that pass through both of the points?

Ans. Infinite lines can pass through a point.

Q2. Name the line segments in Fig. 2.4. Which of the five marked points are on exactly one of the line segments? Which are on two of the line segments?

Ans. Line segments: LM, MP, PQ, QR

Points on exactly one segment: L, Q

Points on two segments: M, P, R

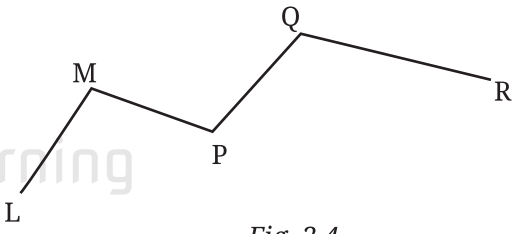


Fig. 2.4

Q3. Name the rays shown in Fig. 2.5. Is T the starting point of each of these rays?

Ans. Rays: TA, TN, TB

No, T is not the starting point for all rays.

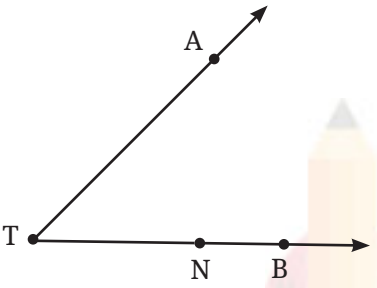


Fig. 2.5

Q4. Draw a rough figure and write labels appropriately to illustrate each of the following:

a. OP and OQ meet at O.

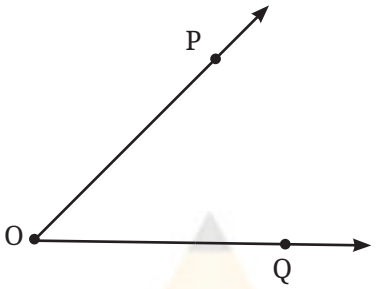
b. XY and PQ intersect at point M.

c. Line l contains points E and F but not point D.

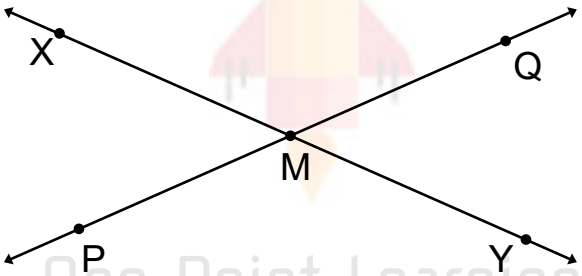
d. Point P lies on AB.

Ans.

a. OP and OQ meet at O → Two rays meeting at a point

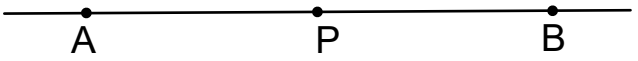


b. XY and PQ intersect at M → Two lines crossing



c. Line l contains E and F but not D → D lies off the line

d. Point P lies on AB → Mark point P on line segment AB



Q5. In Fig. 2.6, name:

a. Five points

b. A line

c. Four rays

d. Five line segments

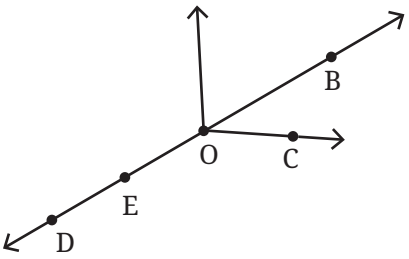


Fig. 2.6

Ans.

Five points: D, E, O, C, B

A line: Line $\overleftrightarrow{DB}$

Four rays: $\overrightarrow{OE}$, $\overrightarrow{OC}$, $\overrightarrow{OB}$, $\overrightarrow{OD}$

Five line segments: $\overline{DE}$, $\overline{DO}$, $\overline{OC}$, $\overline{OB}$, $\overline{EO}$

Q6. Here a ray $\overrightarrow{OA}$ (Fig. 2.7). It starts at O and passes through the point A. It also passes through the point B.

a. Can you also name it as $\overrightarrow{OB}$? Why?

b. Can we write $\overrightarrow{OA}$ as $\overrightarrow{AO}$? Why or why not?

Ans.

a. Yes, you can name it $\overrightarrow{OB}$. Both have same starting point.

b. No, $\overrightarrow{OA} \neq \overrightarrow{AO}$. In naming rays, the starting point must come first.

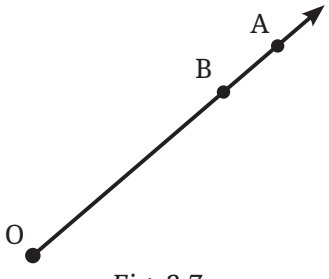
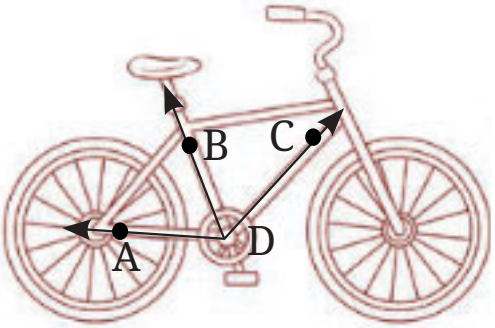


Fig. 2.7

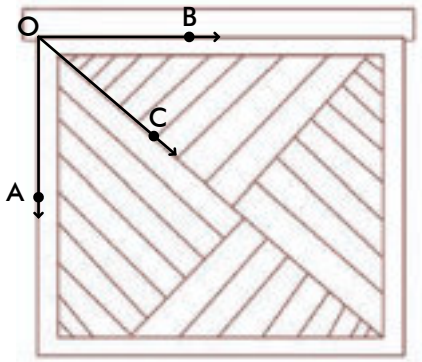
Q1. Can you find the angles in the given pictures? Draw the rays forming any one of the angles and name the vertex of the angle.

Find angles in images:

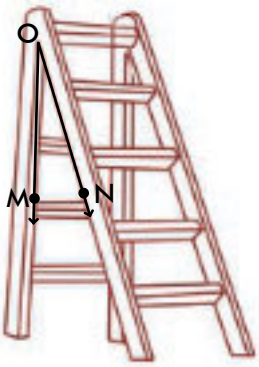
Ans. Yes, each opening/rotation forms an angle. Vertex = hinge point, arms = sides.



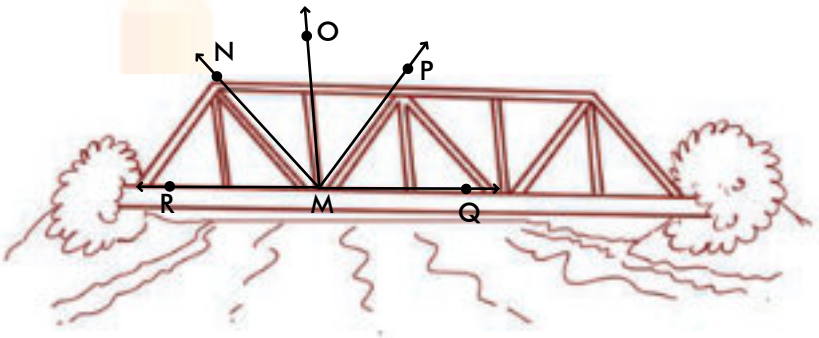
Vertex D



Vertex O



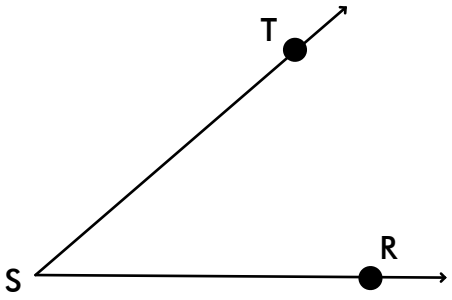
Vertex O



Vertex M

Q2. Draw and label an angle with arms ST and SR.

Ans.

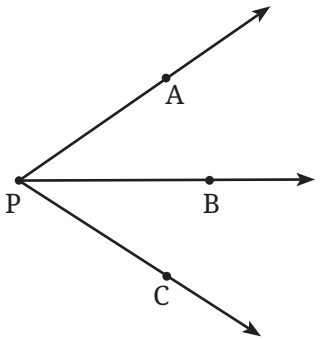


Q3. Explain why ∠APC cannot be labelled as ∠P.

Ans: ∠APC ≠ ∠P:

Because "P" alone doesn't specify which angle — multiple angles can share a vertex.

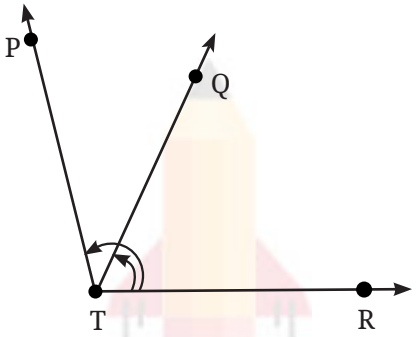
It can be **∠APC, ∠APB or ∠BPC**



Q4. Name the angles marked in the given figure.

Ans.

∠PTQ, ∠QTR, ∠PTR



Q5. Mark any three points on your paper that are not on one line. Label them A, B, C. Draw all possible lines going through pairs of these points. How many lines do you get? Name them. How many angles can you name using A, B, C? Write them down, and mark each of them with a curve.

Ans. Three points A, B, C (not in a line):

Lines: AB, AC, BC

Angles: ∠ABC, ∠BAC, ∠ACB (3 angles)