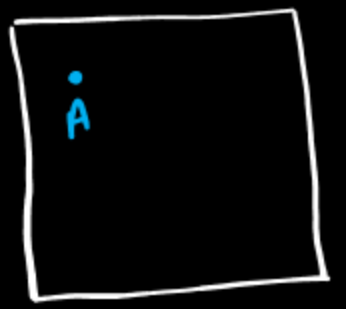
Line, Line Segment and Ray

Grade 4: Geometry

Point :

A point is an exact location.



Line segment :

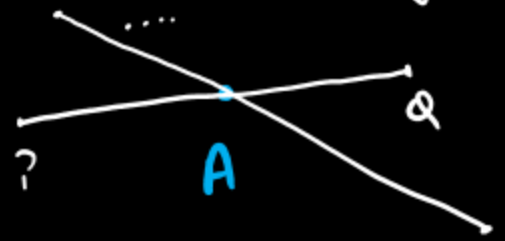
→ The straight path from A to B is called the line segment AB.

⇒ Line segment AB = $\overline{AB}$

⇒ fixed length. (definite length)

⇒ can be drawn on a paper.

→ Infinite line segments can be drawn, passing through a given point A.



Line: A line is an endless straight path, that extends in both the direction.

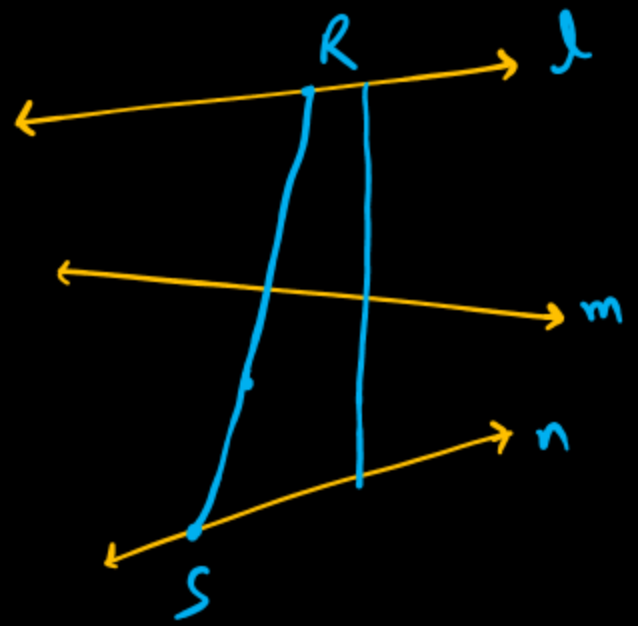
⇒ A line has no end point

⇒ Line $\overleftrightarrow{AB}$

$\overleftrightarrow{AB}$ ⇒ Line AB

$\overline{AB}$ ⇒ Line segment AB

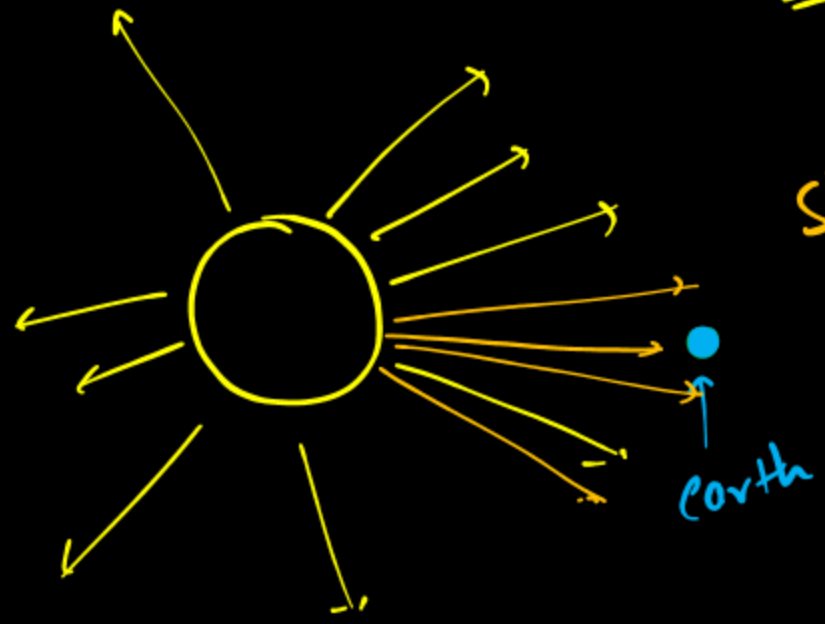
⇒ A line is also represented by a single lowercase alphabet. (l, m, n)



{ One and only one line can be drawn to pass through two given points, A and B.

Ray: A straight path having a starting point which extends upto infinity in one direction.

eg: Sun ray



Starting point

Initial point

~499 seconds to reach earth.

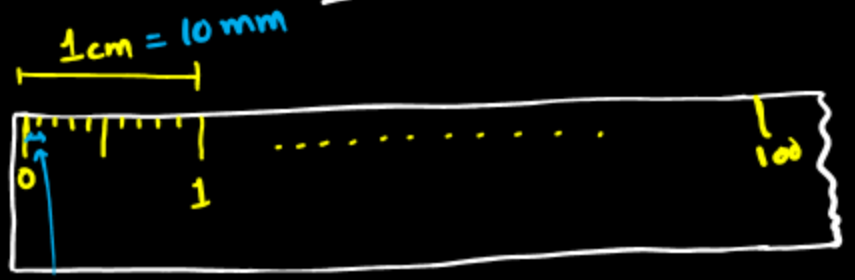
Ray AB ≡ $\overrightarrow{AB}$

24
× 25
600

How to measure a line segments.

⇒ We use a Scale or ruler

⇒



millimetre (mm)

100 cm = 1 m

1m = 100 x 10 mm

1m = 1000 mm

⇒ One of the edge is marked in centimetres (cm)

↳ It is a unit to measure length.

"Standard de Internationale"

⇒ International Standard unit of length is metre (m)

[S.I. unit of length is metre]

1000 m = 1 km (kilometre)

1 km = 1000 m

1 km = 1000 x 100 cm

1 km = 100000 cm

1 mm ⇒ Smallest distance that can be measured using a scale

10 mm = 1 cm

12 mm = 1.2 cm

15 mm = 1.5 cm

30 mm = 3 cm

10 cm = 100 mm

100 cm = 1000 mm

100 cm = 1 m ←

200 cm = 2 m

2000 cm = 20 m

1000 m = 1 km

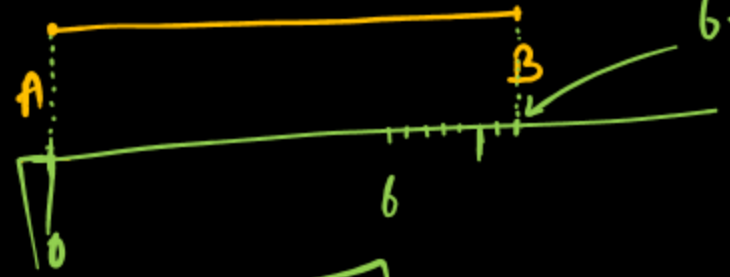
2000 m = 2 km

5 km = 5000 m = 500000 cm

5000 m = 5000 × 100 cm

= 500000 cm

Q. Draw a line segment, $\overline{AB}$ of length 6.7 cm.



6.7 cm = 6 cm + 7 mm

$\overline{AB} = 6.7\ cm$

Straight line and curve

⇒ we need straight edge (scale)

for

⟹ To draw a curve we need curved edge like a coin, edge of a glass, bangle.

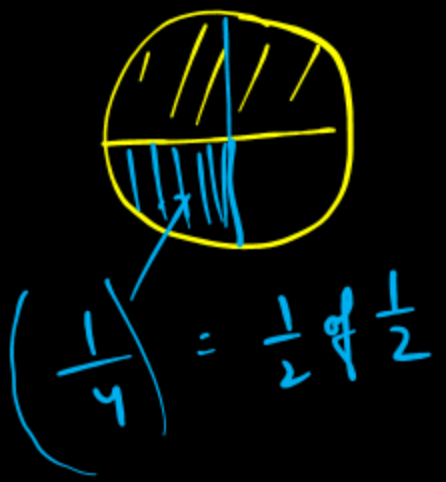
$1\ km = 1000\ m = 100000\ cm.$

$\frac{1}{2}\ km = 500\ m = 50000\ cm.$

$\frac{1}{4}\ km = 250\ m = 25000\ cm$

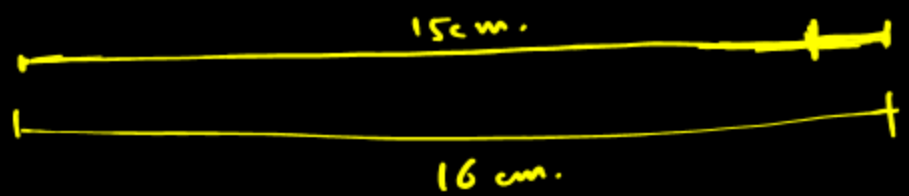
$\vdots$

$\frac{1}{1000}\ km = 1\ m = 100\ cm \Rightarrow$

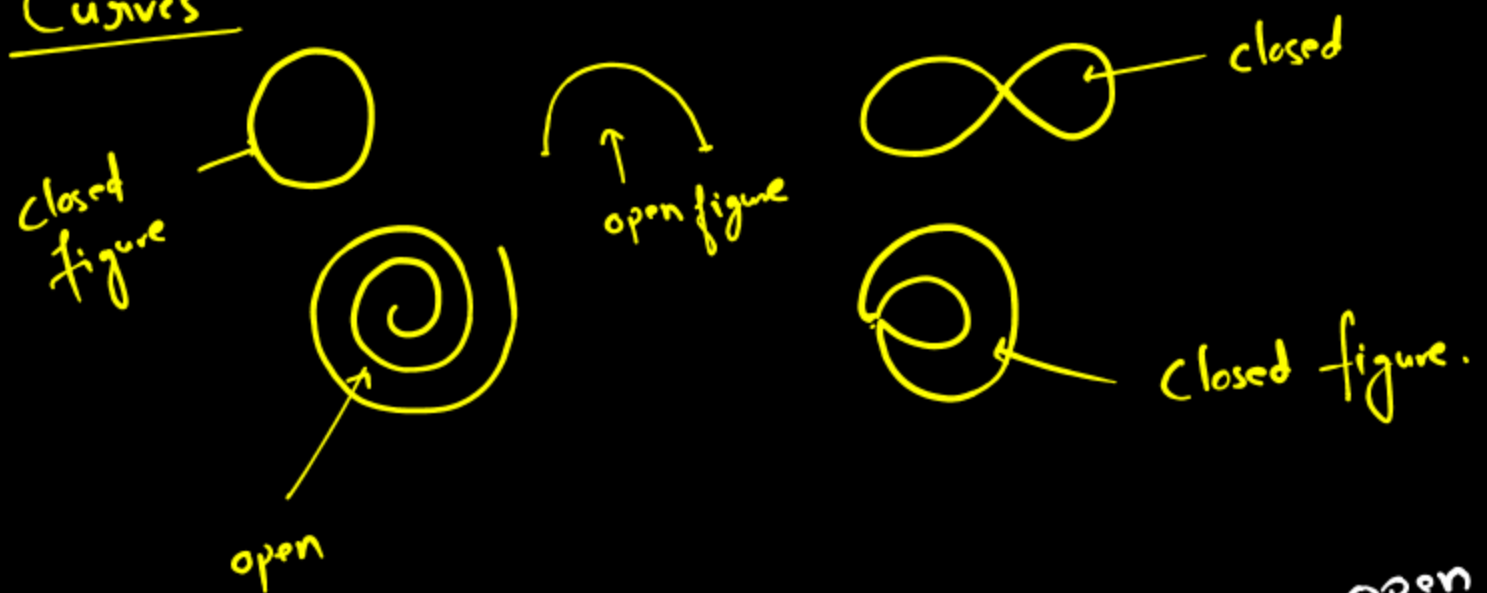


1. Draw a line segment of length 4.9 cm and name it / label it.

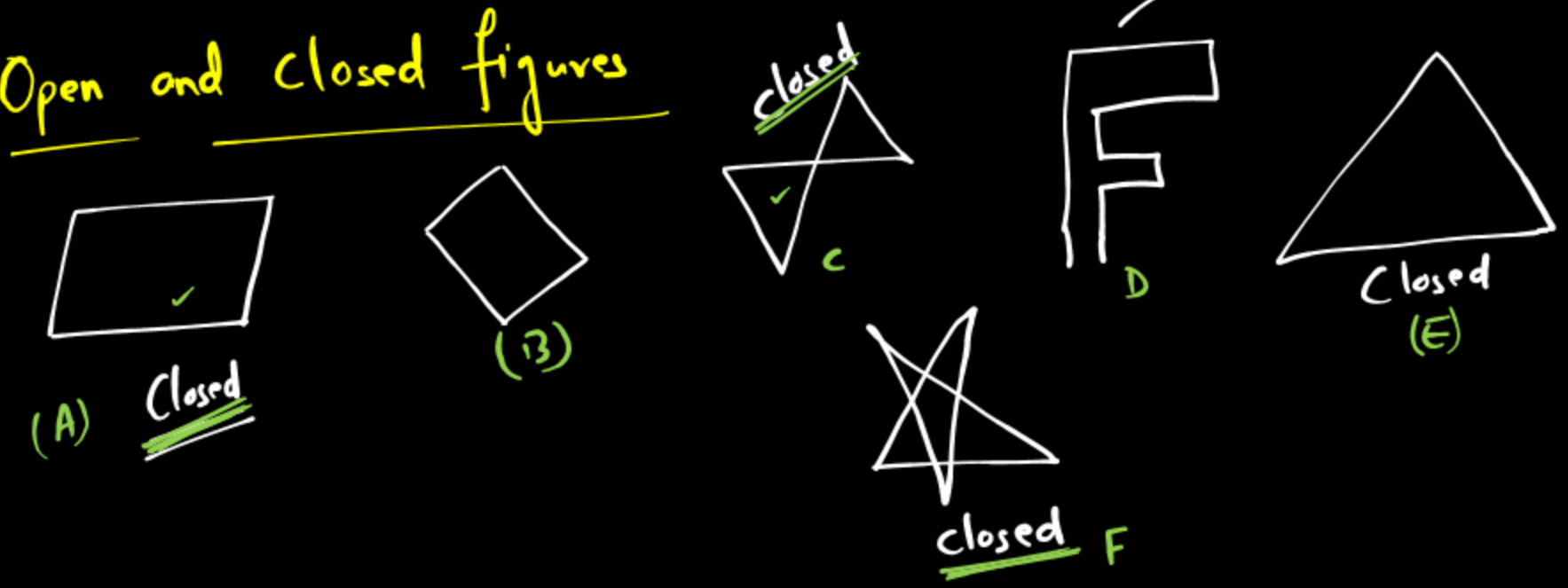
4cm and 9mm



Curves



Open and closed figures



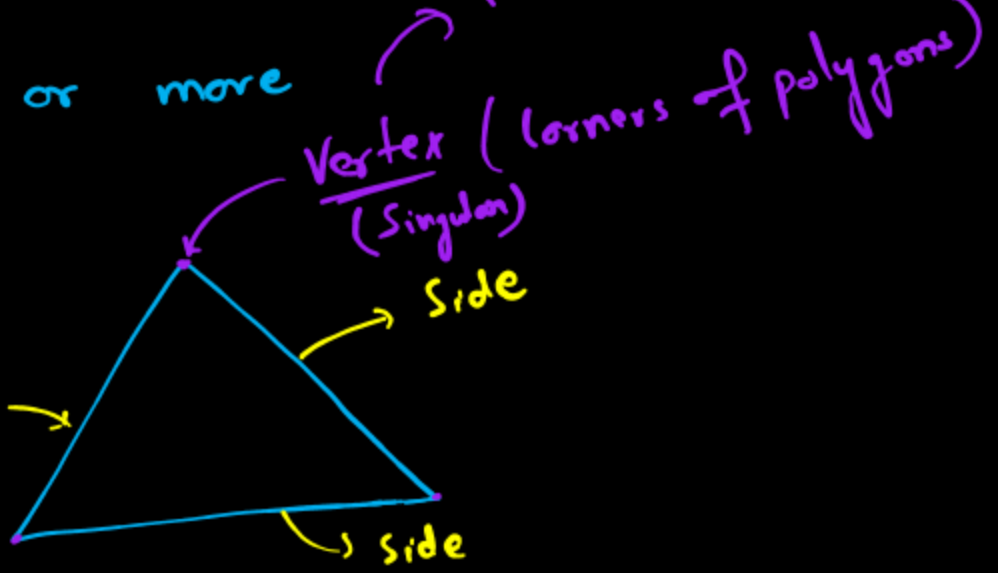
Simple closed figures.

A closed figure which does not intersect itself is called simple closed figure.

Polygons

A simple closed figure formed of three or more line segments is called polygon.

- Triangle is the simplest polygon with 3 line segments.



→ These line segments are known as its sides.

Vertex is a point where two adjacent sides meet.

Types of polygons

1. Triangle (3 sides)
2. A polygon with 4 sides is a quadrilateral
   - Rectangle
   - Square
   - Rhombus
   - Parallelogram
3. A polygon with 5 sides is called a pentagon

4. A polygon with 6 sides is called a hexagon →

5. _____ 7 sides _____ heptagon
6. _____ 8 sides _____ octagon →

End of the chapter