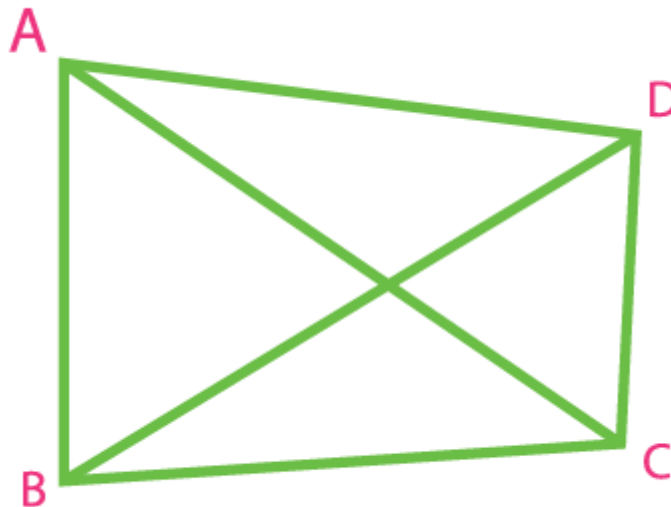# Class – 5

Subject – Math

Chapter – 10

Geometry

Quadrilateral: A figure surrounded by 4 straight lines is called a quadrilateral.

Characteristics:

    i.   It has 4 sides
    ii.   It has 5 vertices / corner points
   iii.   It has 4 angles
   iv.   It has 2 diagonals.

- AB, BC, CD, DA are 4 sides.
- Point A, B, C D are 4 vertices / corner points
- ∠A, ∠B, ∠C, ∠D are 4 angles.
- AC and BD are 2 diagonals.

Diagonal: A line segment joining two opposite pairs of vertices called a diagonal.

- A quadrilateral has two diagonals, but a triangle does not have any diagonal.
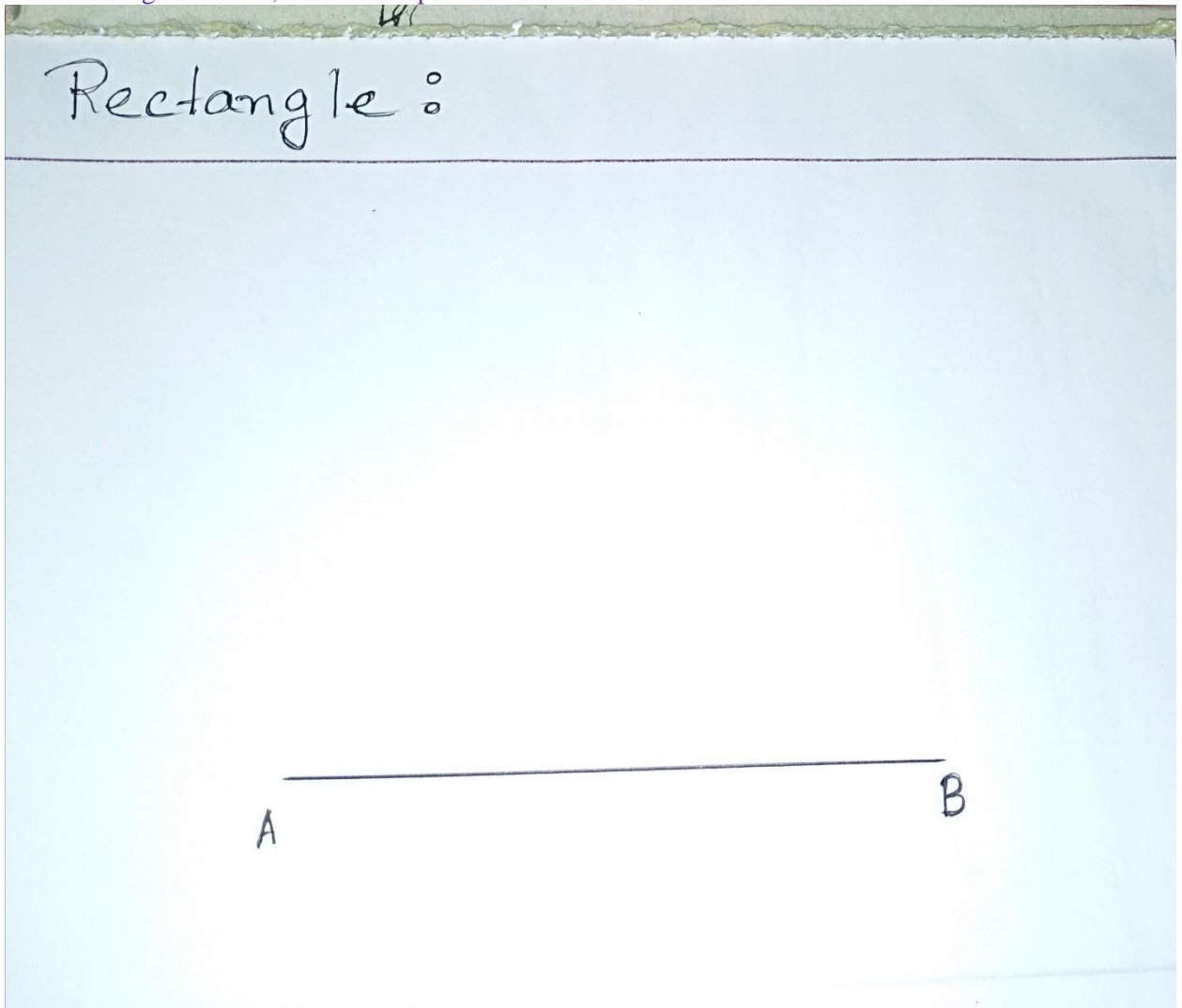
Types of quadrilateral: There are 5 types of quadrilateral. They are:

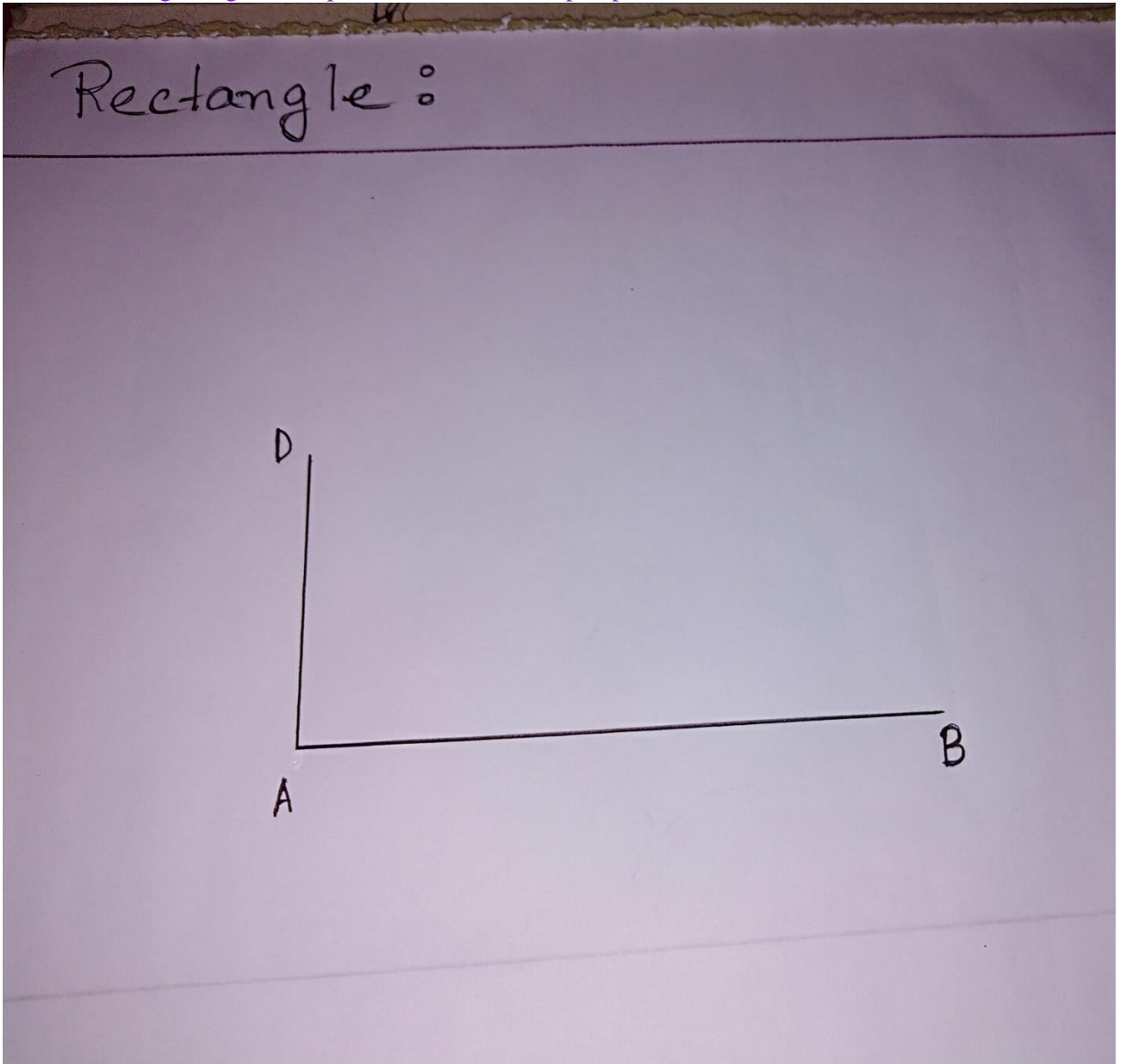1. Rectangle
2. Square
3. Parallelogram
4. Rhombus
5. Trapezium

**1. Rectangle:** A quadrilateral having four right angles is called rectangle.

How to draw:

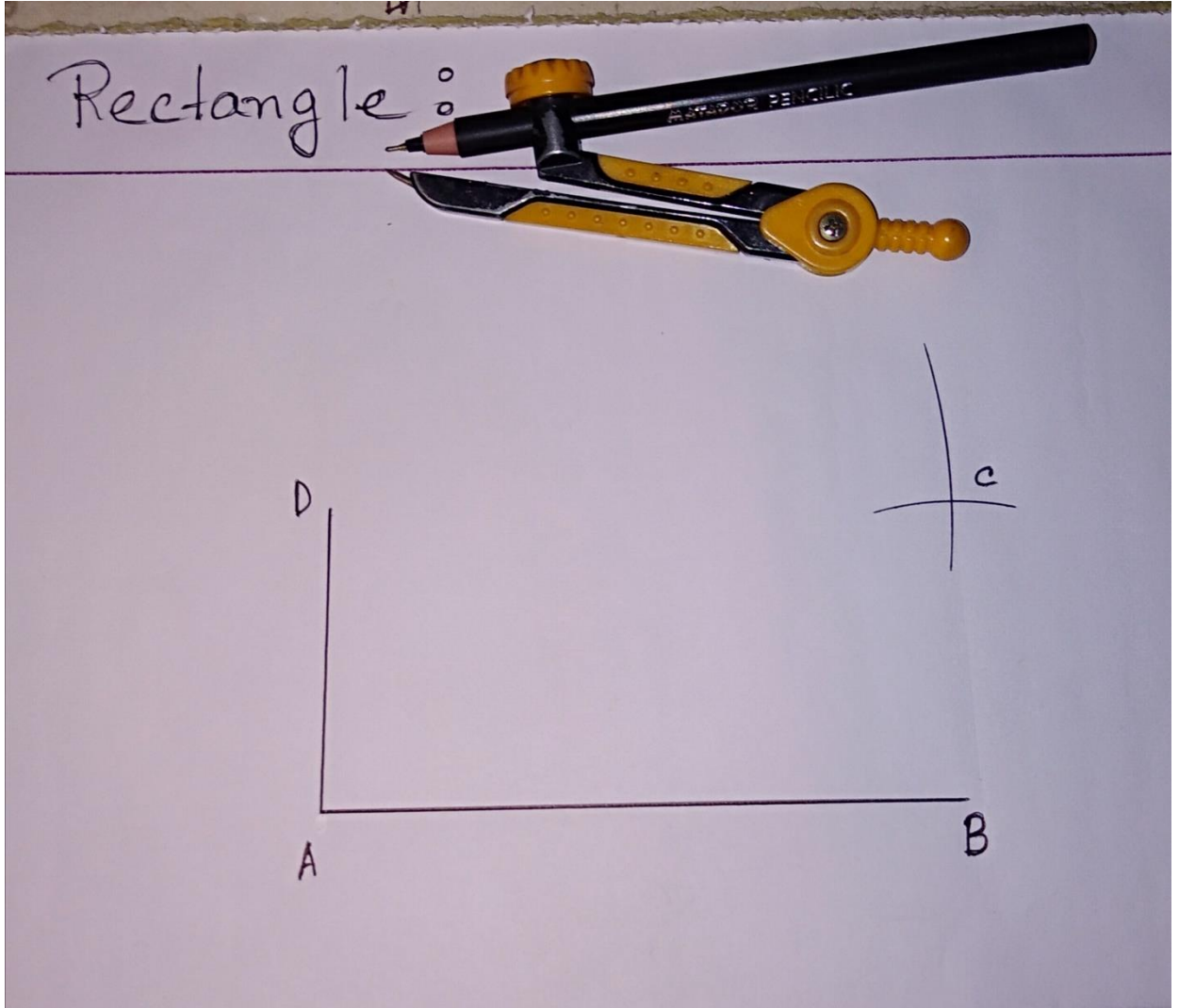1. Draw a straight line AB, with the help of ruler.

Rectangle :

A _____ B

2. Then draw a right angle at the point of A with the help of protractor.

Rectangle :

3. Measure the length of the line segment AB with the help of compass. Then place the pointer of the pencil- compass on D and draw an arc.
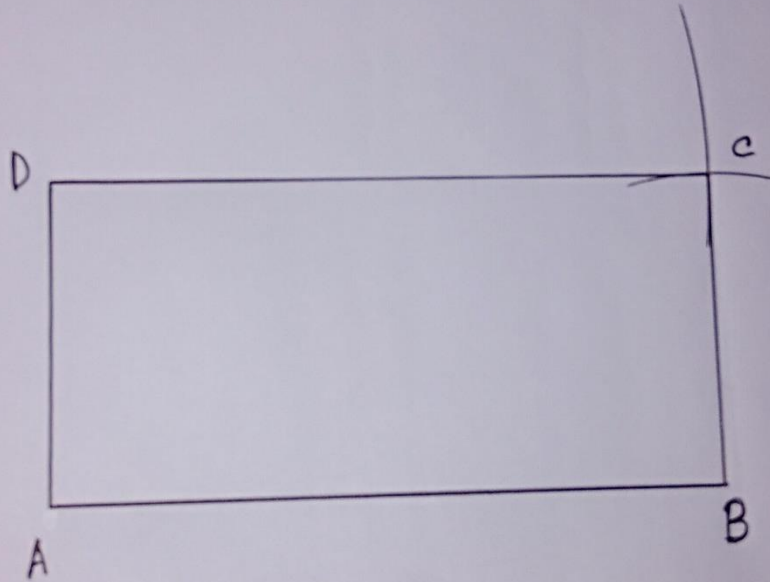
Rectangle :

D

A   B
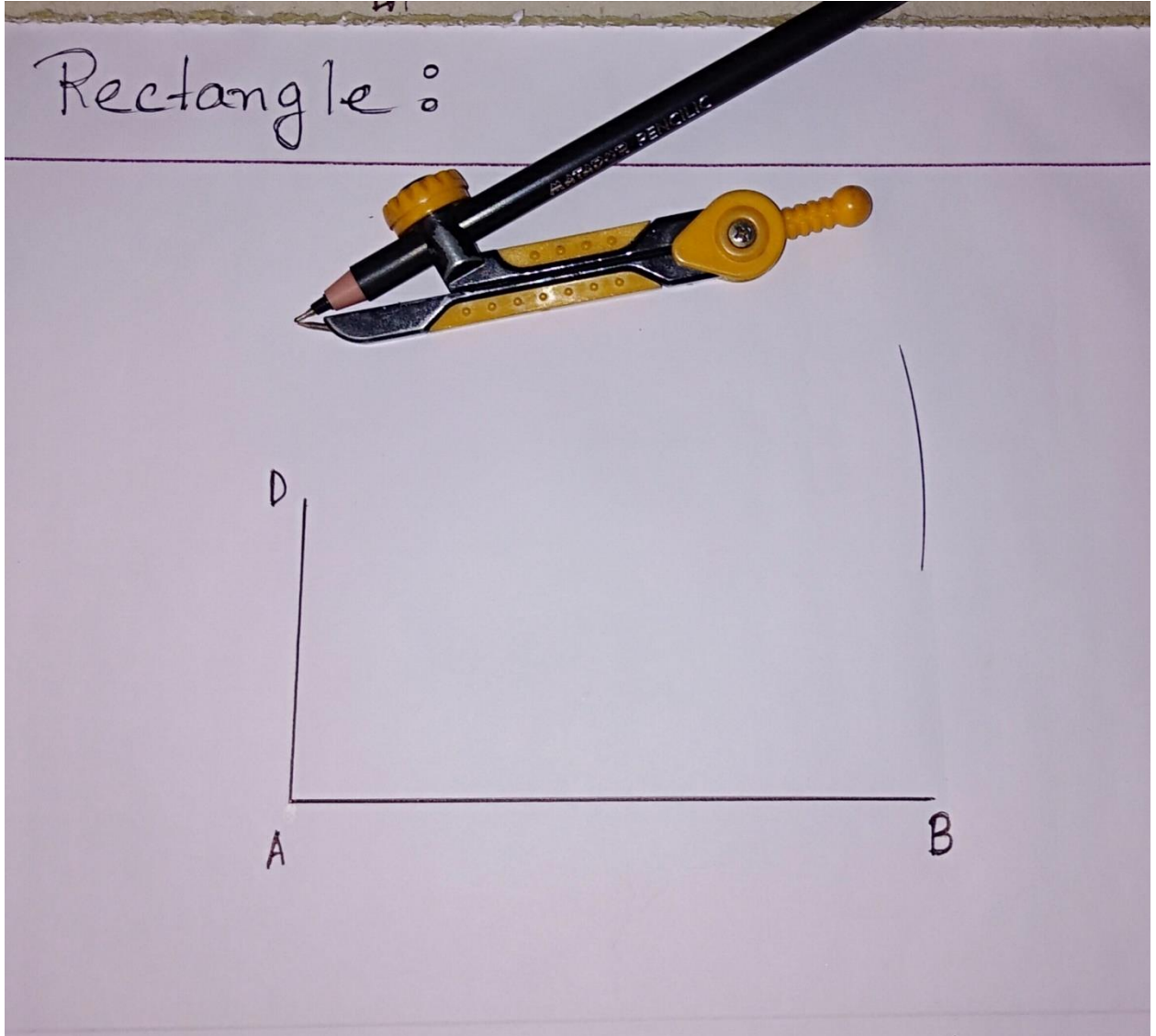
4. Similar way, measure the length of the line segment AD and draw another arc from B. Two arcs cut at the point C.

Rectangle :

5. Join B, C and D, C. ABCD is a rectangle.
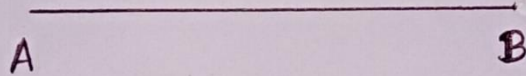
Rectangle :

Characteristics:

   i.   Opposite sides are equal.
   ii.   All angles are right angle / 90°.
   iii. Two diagonals are bisecting each other.

2. Square: A rectangle having four equal sides is called a square.
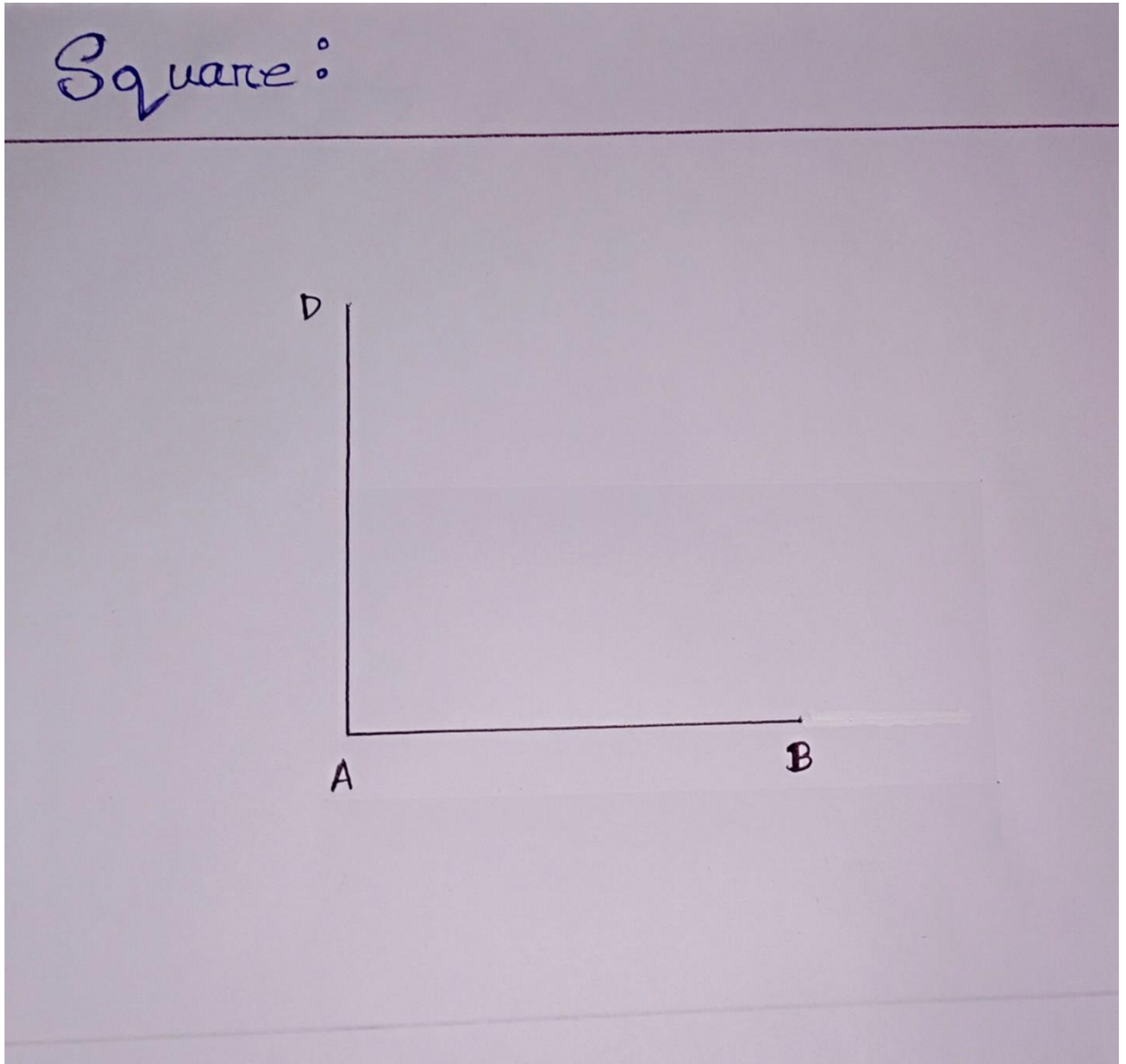
How to draw:
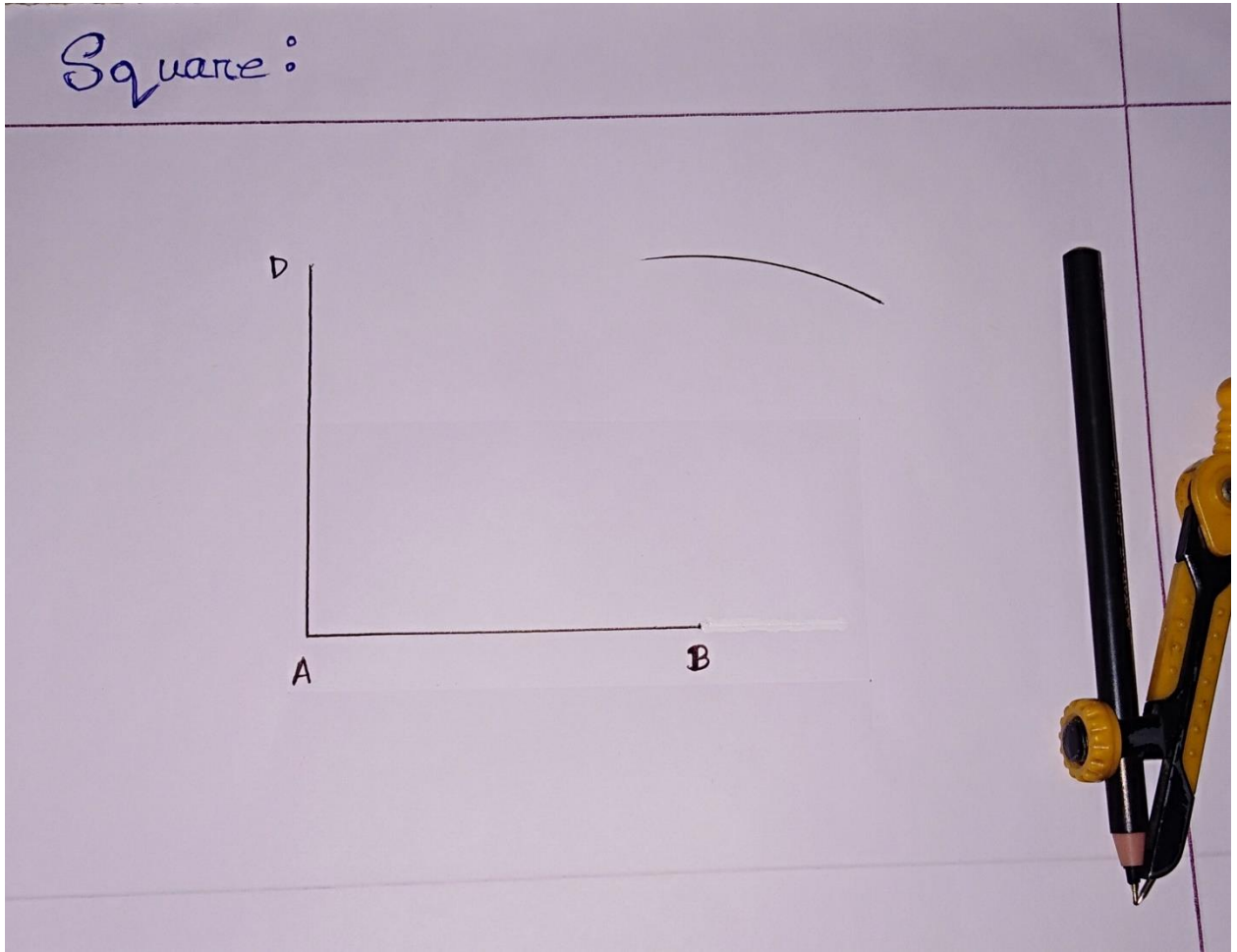
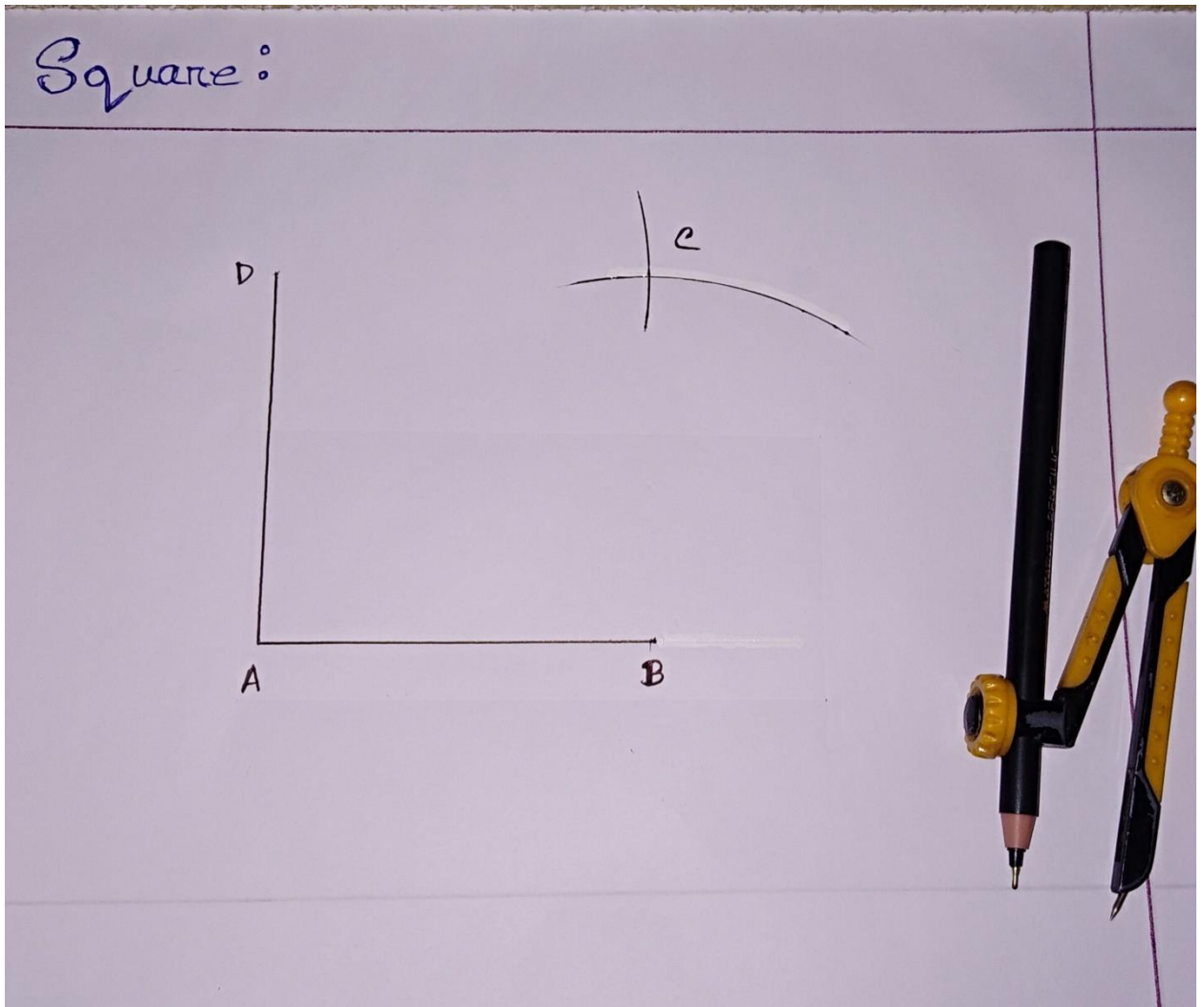1. Draw a line segment AB with the help of ruler.

Square:

A   B

2. Then draw a right angle at the point of A with the help of protractor. Here AB = AD.
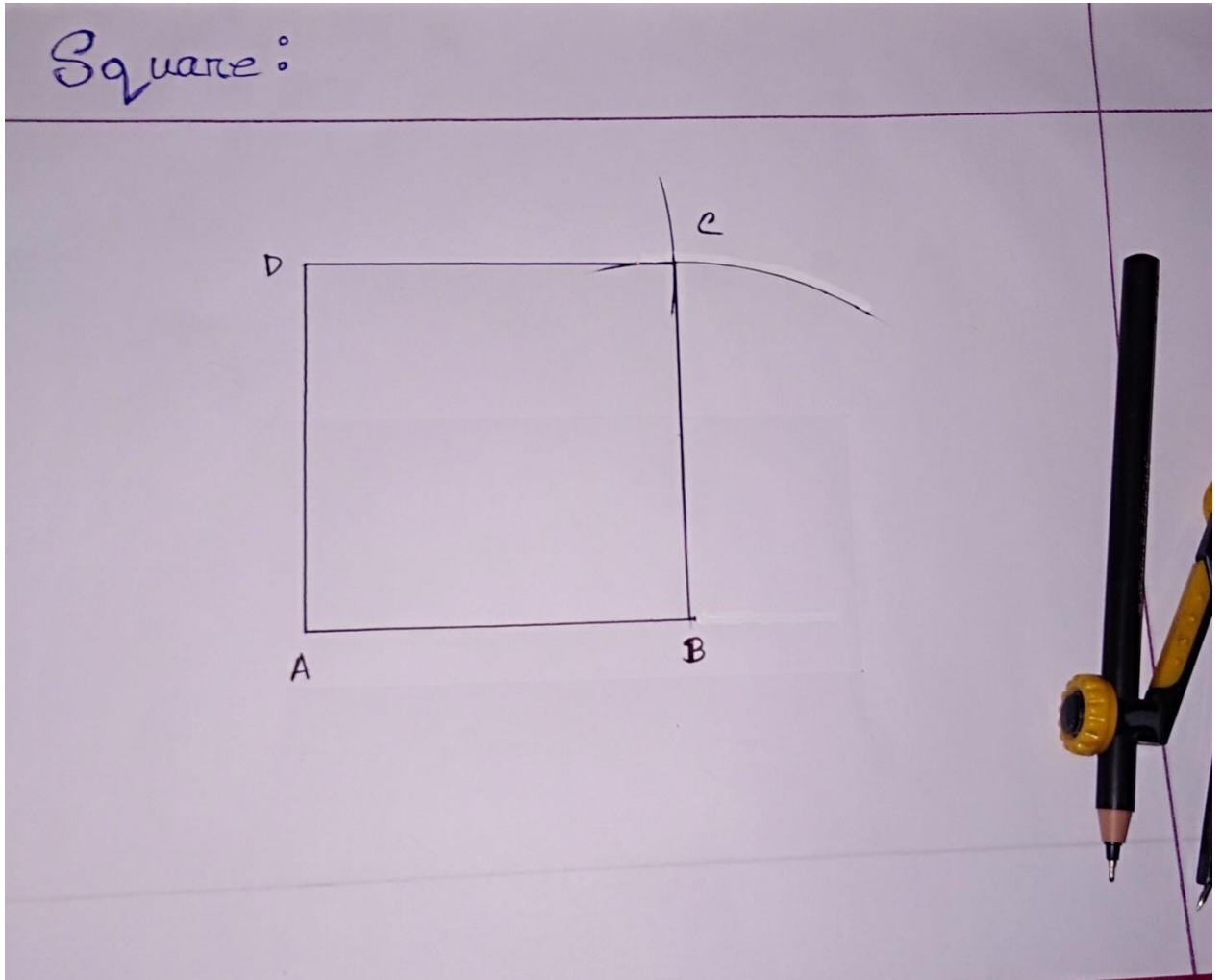
Square:

D

A   B

3. Measure the length of the line segment AB with the help of compass. Then place the pointer of the pencil- compass on D and draw an arc.

Square :

D

A

B

4. Similar way, draw another arc from B. Two arcs cut at the point C.

Square:

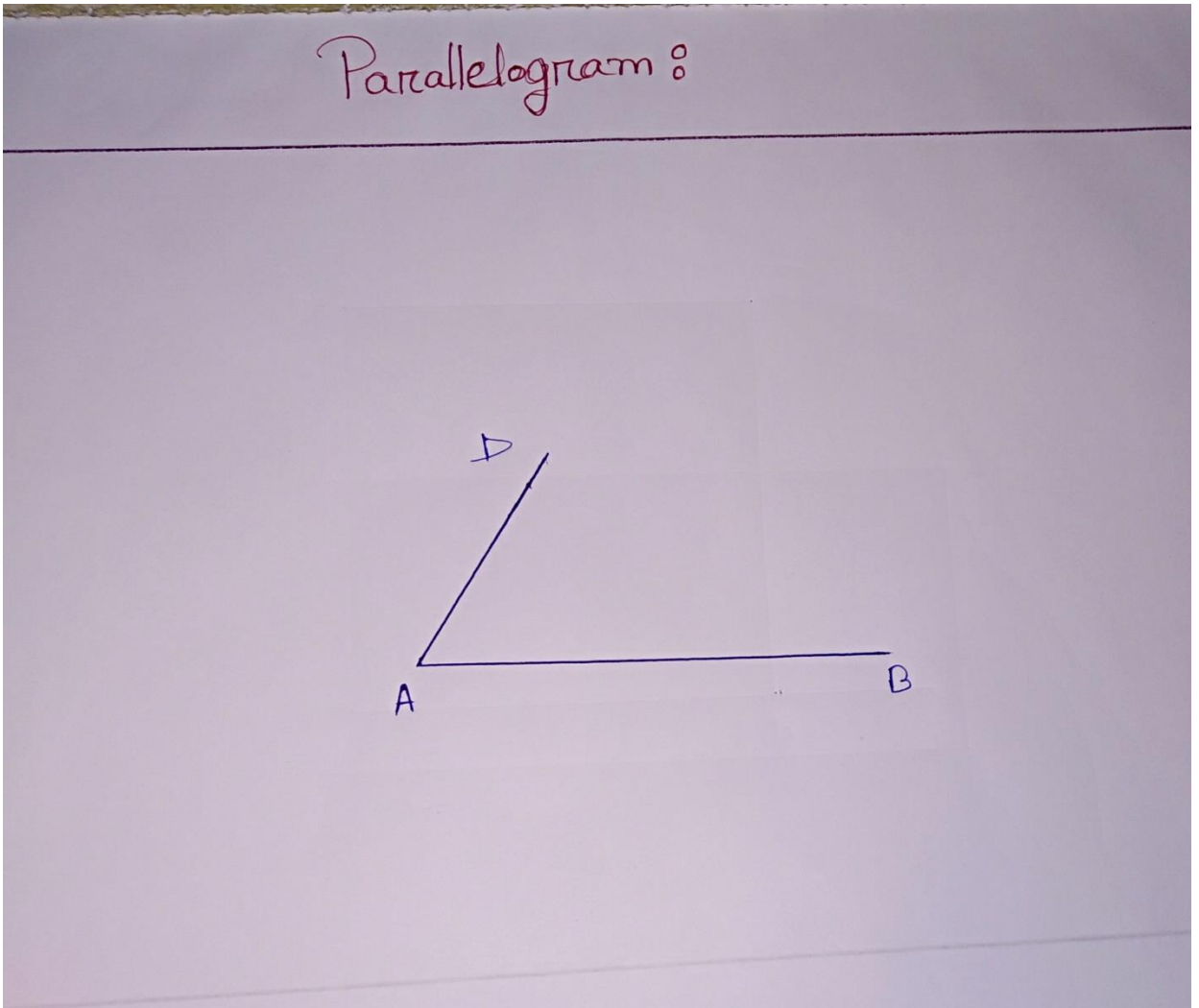5. Join B, C and D, C. ABCD is a square.

Square :

Characteristics:

i.   All sides are equal.
ii.   All angles are right angle / 90°.
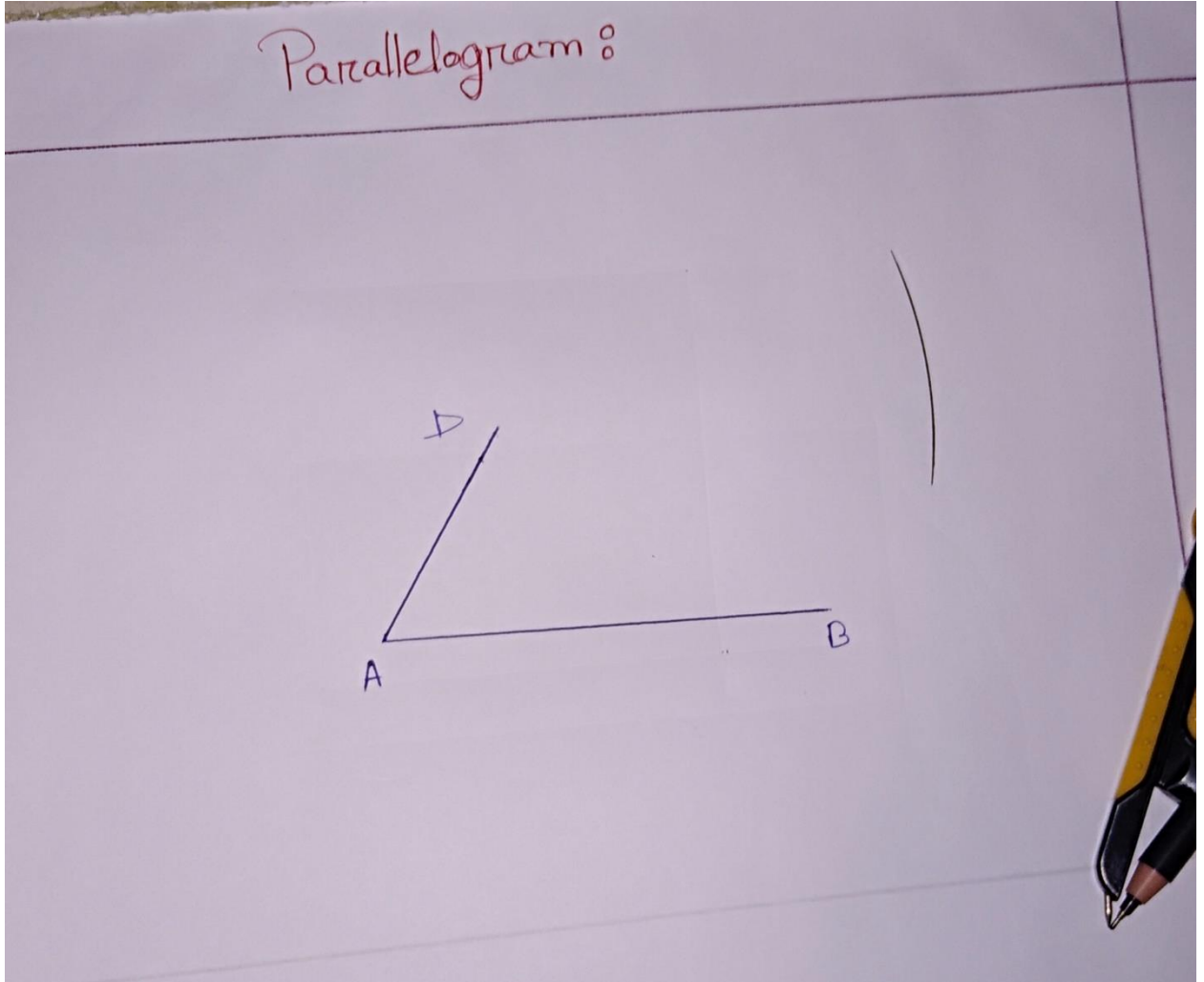iii.   Two diagonals are equal.

3. Parallelogram: A quadrilateral having two pairs of parallel sides is called a parallelogram.

How to draw:

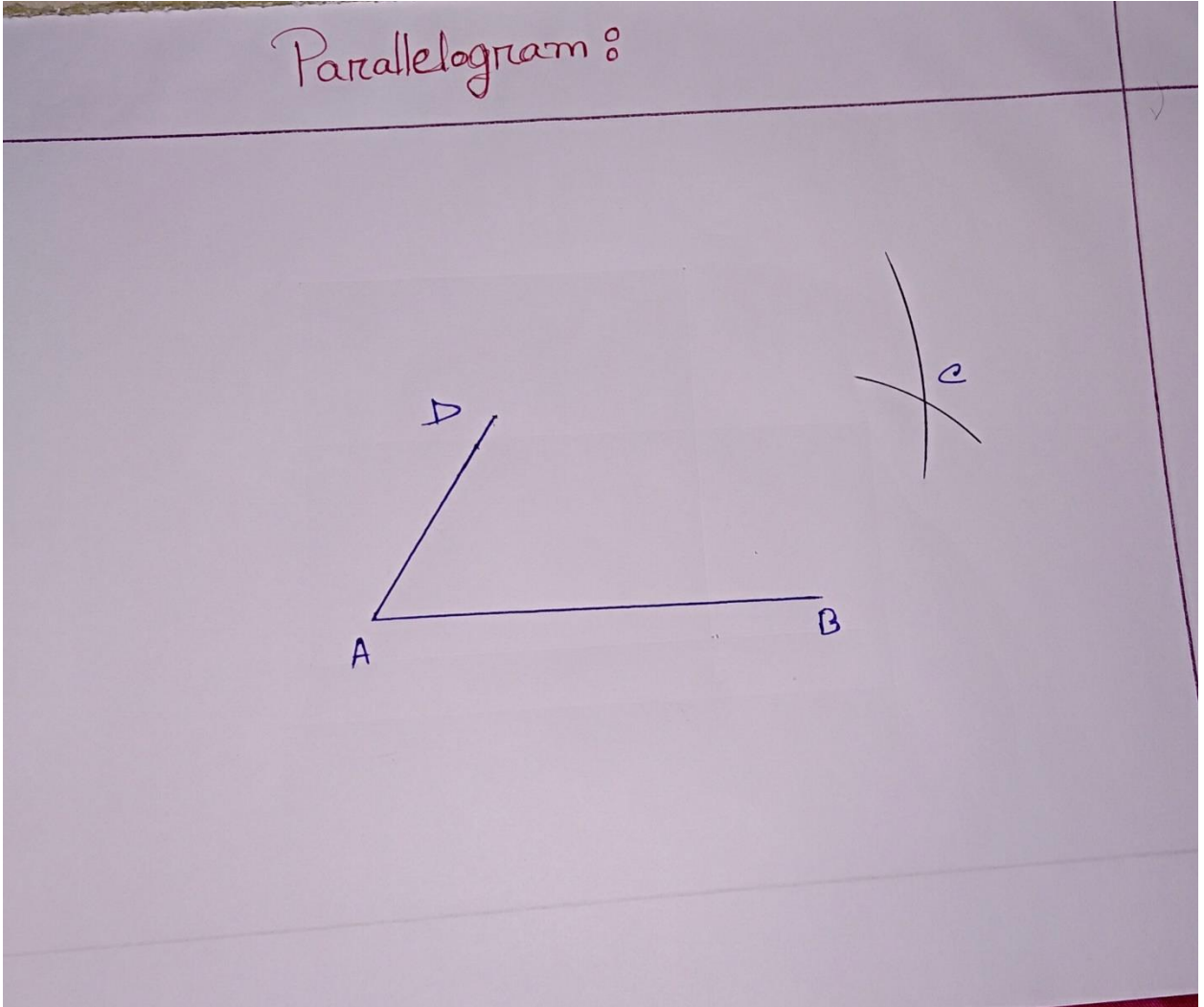1. Draw two line segment AB and AD with the help of ruler. AB > AD.

Parallelogram :

D

A   B

2. Measure the length of the line segment AB with the help of compass. Then place the pointer of the pencil- compass on D and draw an arc.

Parallelogram :

3. Similar way, measure the length of the line segment AD and draw another arc from B. Two arcs cut at the point C.

Parallelogram :

4. Join B, C and D, C. ABCD is a Parallelogram.

Parallelogram :

Characteristics:

   i.   Opposite sides are parallel and equal.
   ii.   Opposite angles are equal
   iii.   Two diagonals are bisecting each other.

4. Rhombus: If all the sides of a quadrilateral are equal in length is called a rhombus.

   ▪ Square is a kind of rhombus.

How to draw:

1. First, Draw a line segment AB with the help of ruler. Then Draw an angle ∠DAB, which is not right angle. Here AB=AD.
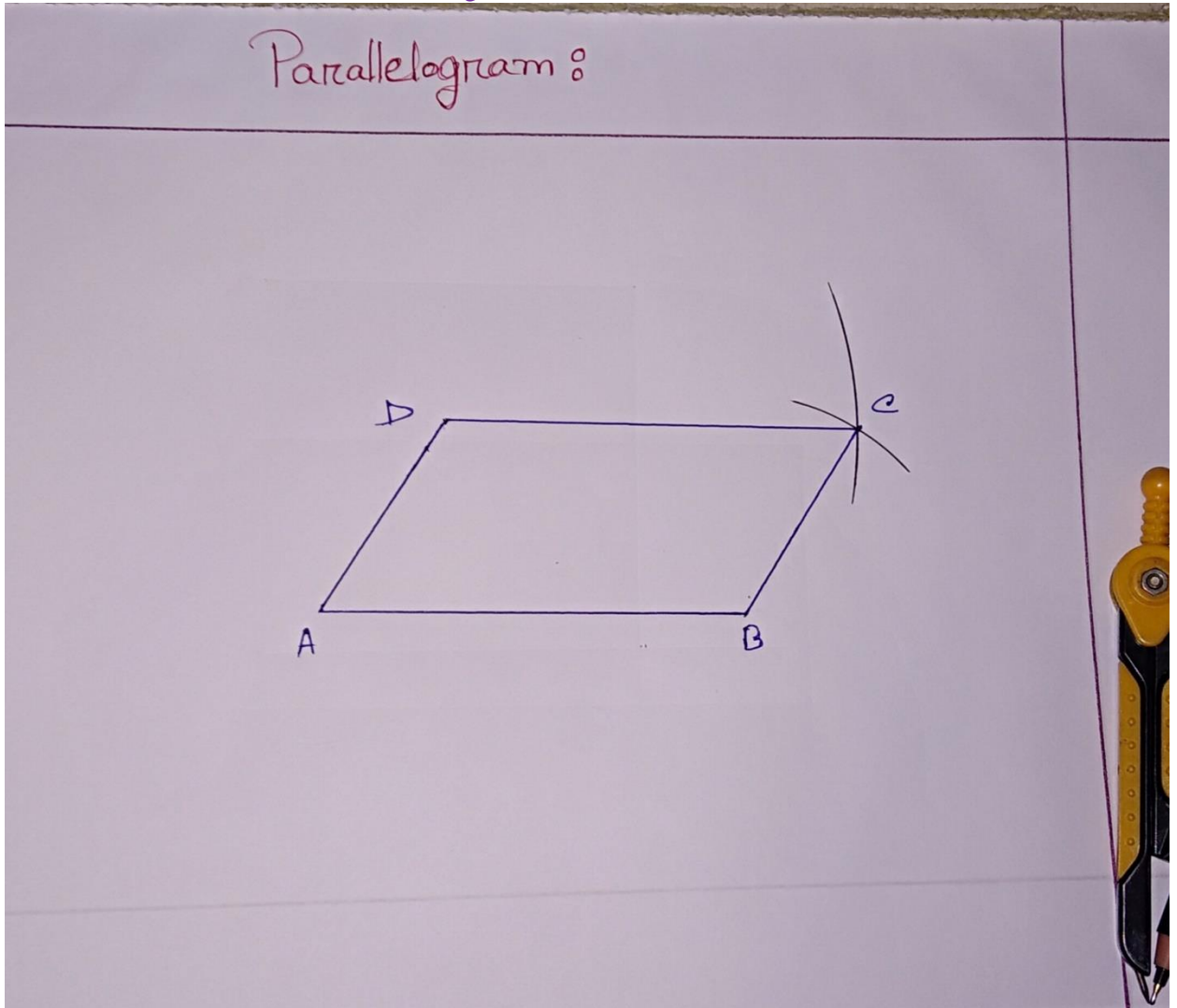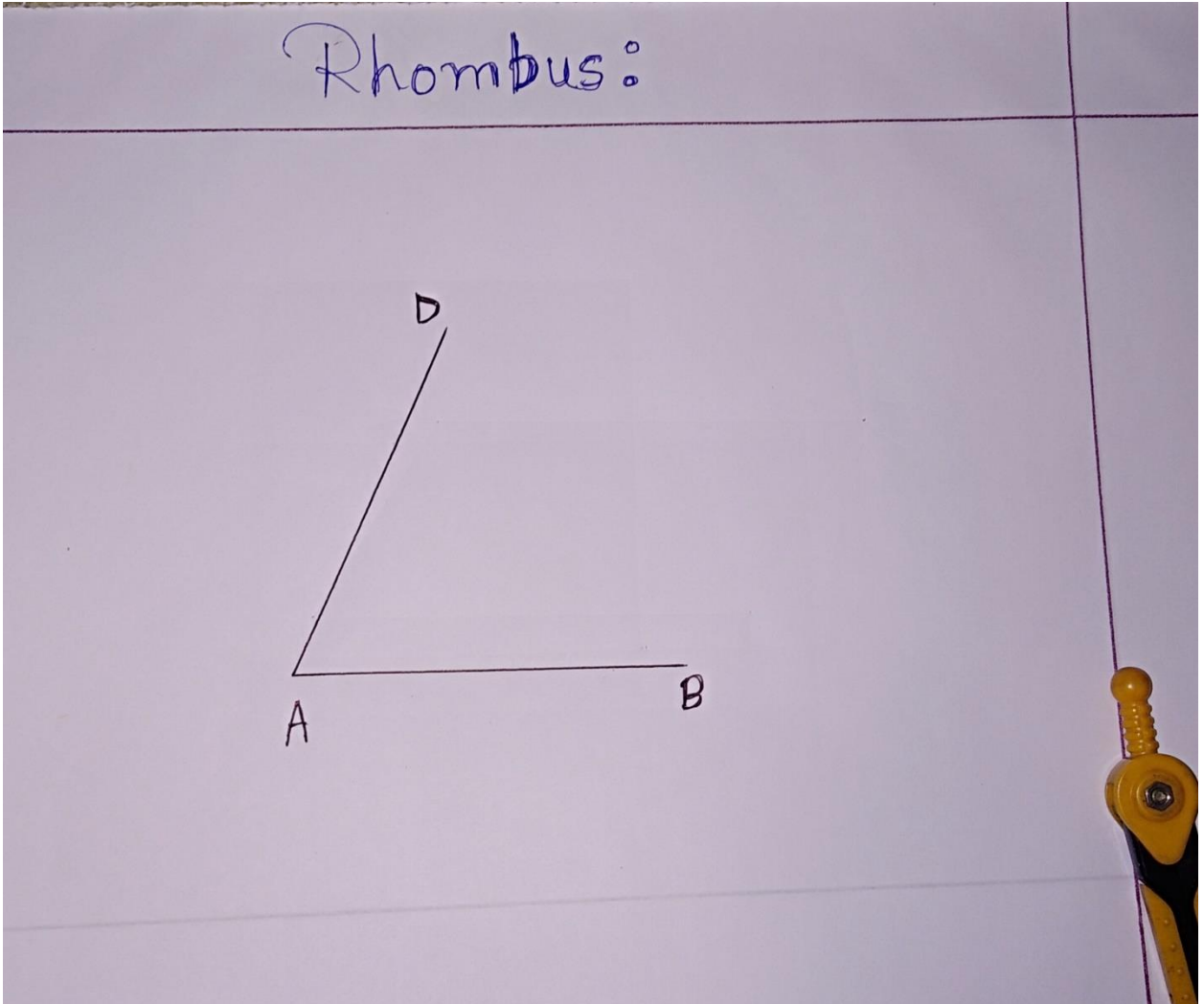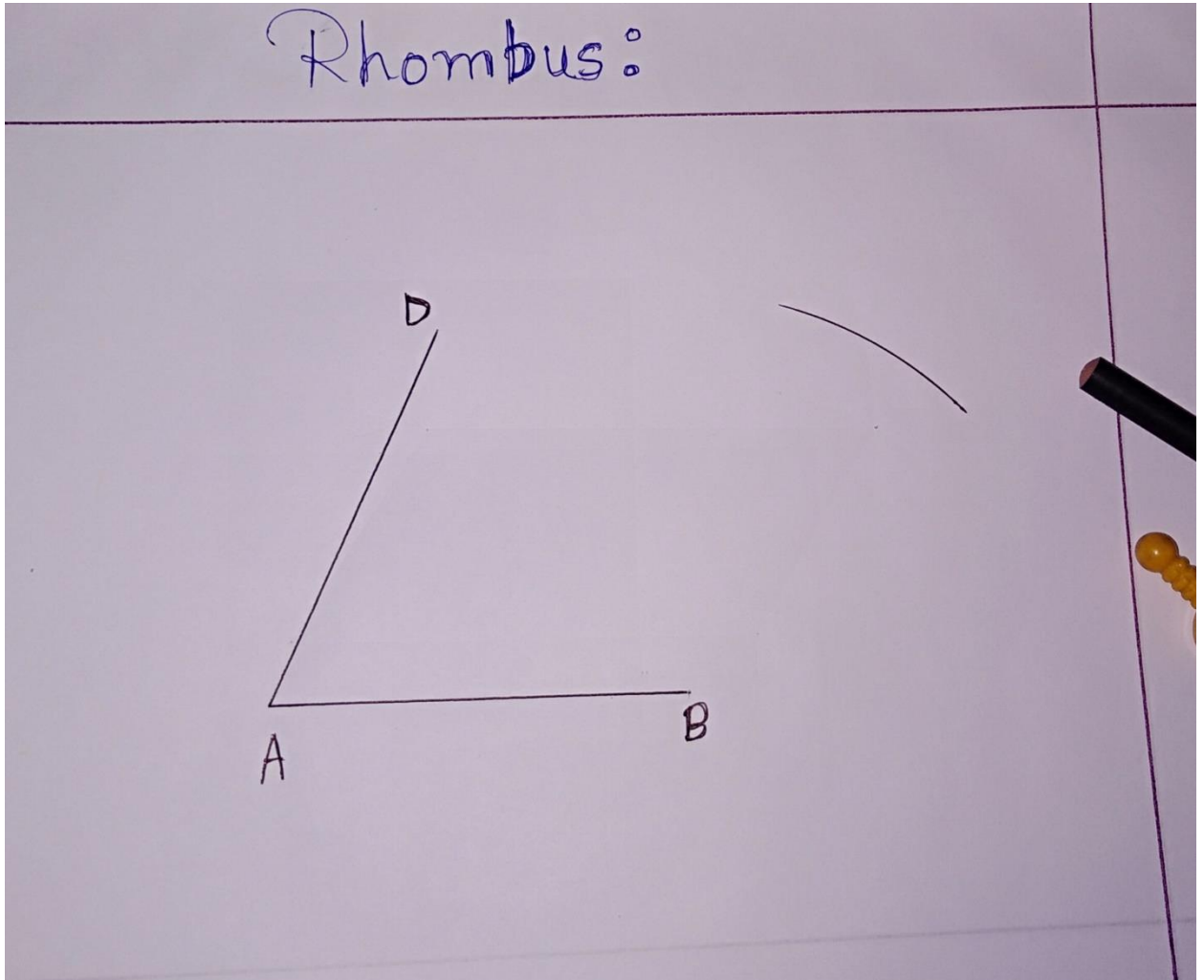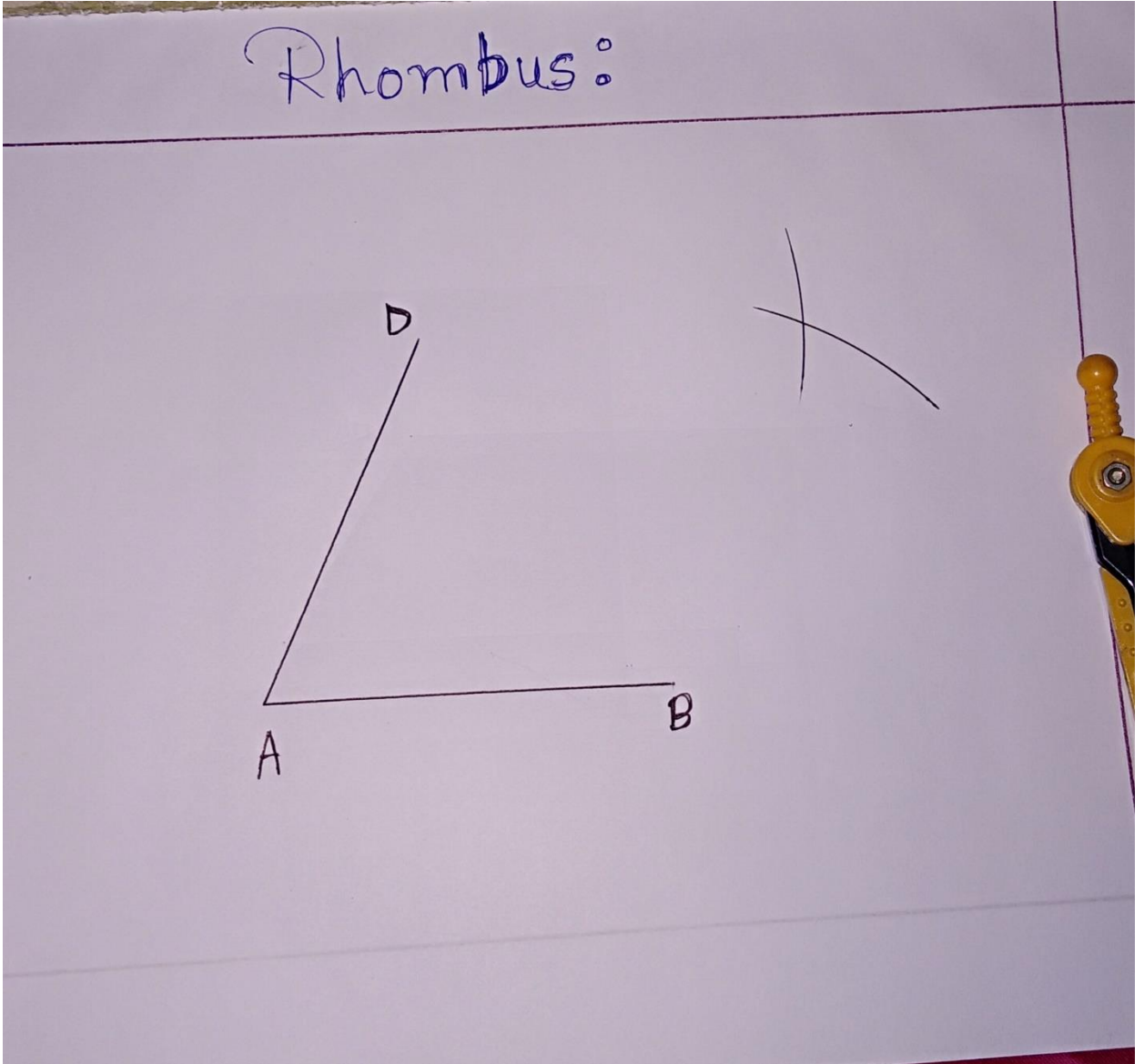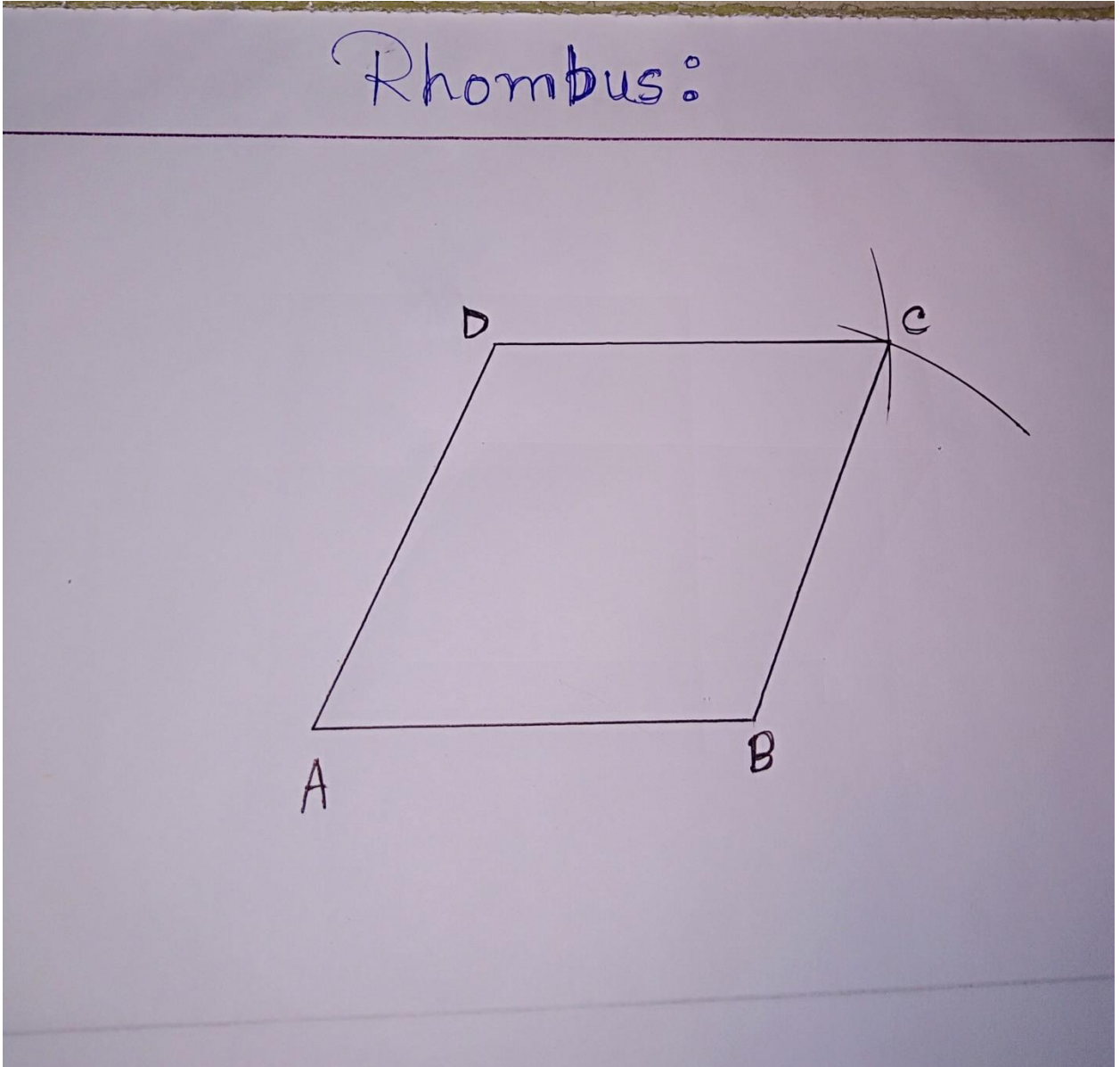
2. Measure the length of the line segment AB with the help of compass. Then place the pointer of the pencil- compass on D and draw an arc.

Rhombus:

3. Similar way, draw another arc from B. Two arcs cut at the point C.

Rhombus:

A

B

D

4. Join B, C and D, C. ABCD is a rhombus.

Rhombus:

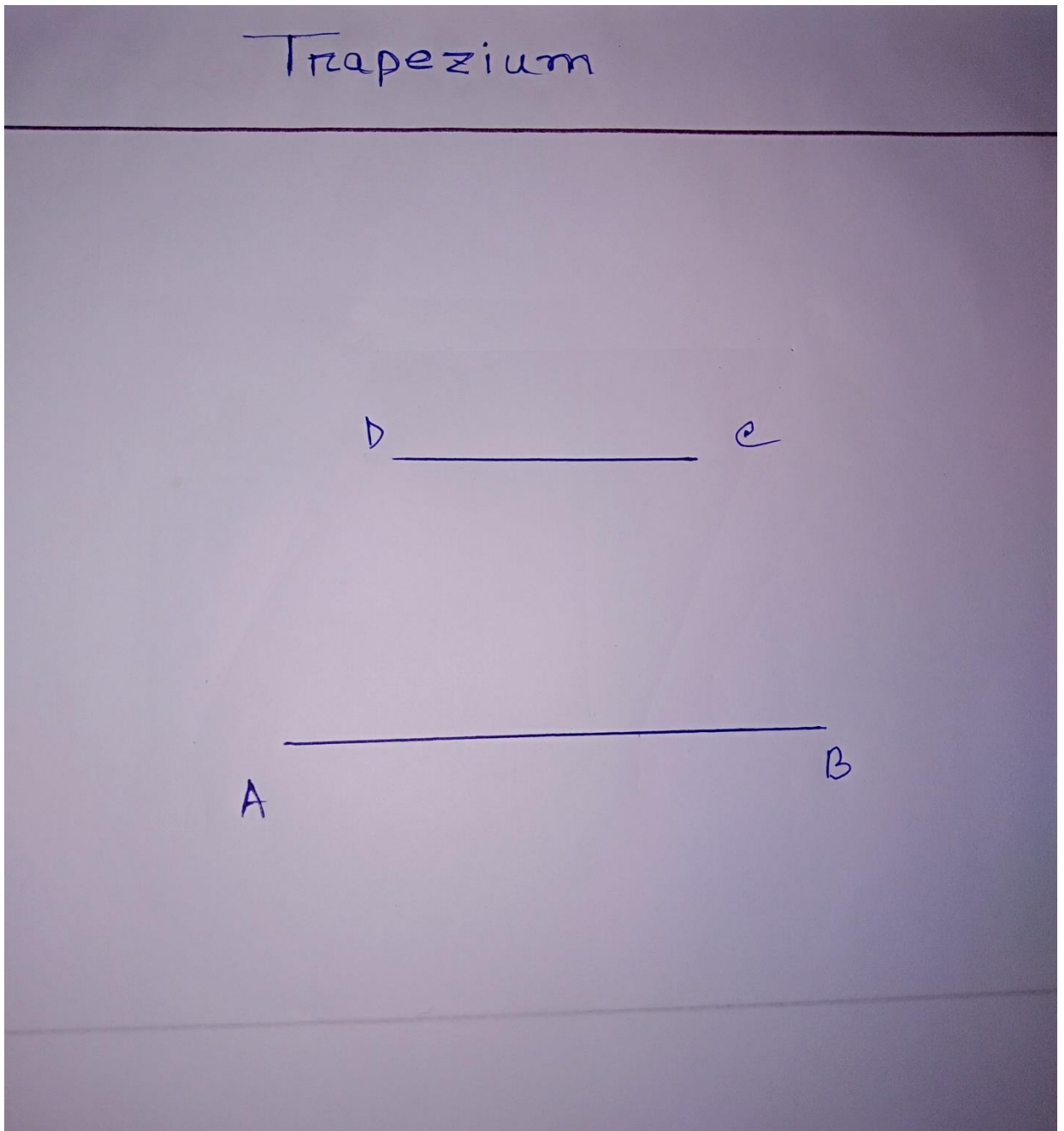**Characteristics:**

i. All sides are equal
ii. Opposite angles are equal
iii. Two diagonals are bisecting each other at right angle.

5. Trapezium: A quadrilateral having one pair of parallel sides is called a trapezium.

How to draw:

1. Draw a pair of parallel line AB and CD, which are not equal in length.

Trapezium

D _____ C

_____
A   B

2. Join A, D and B, C. Here ABCD is a Trapezium.
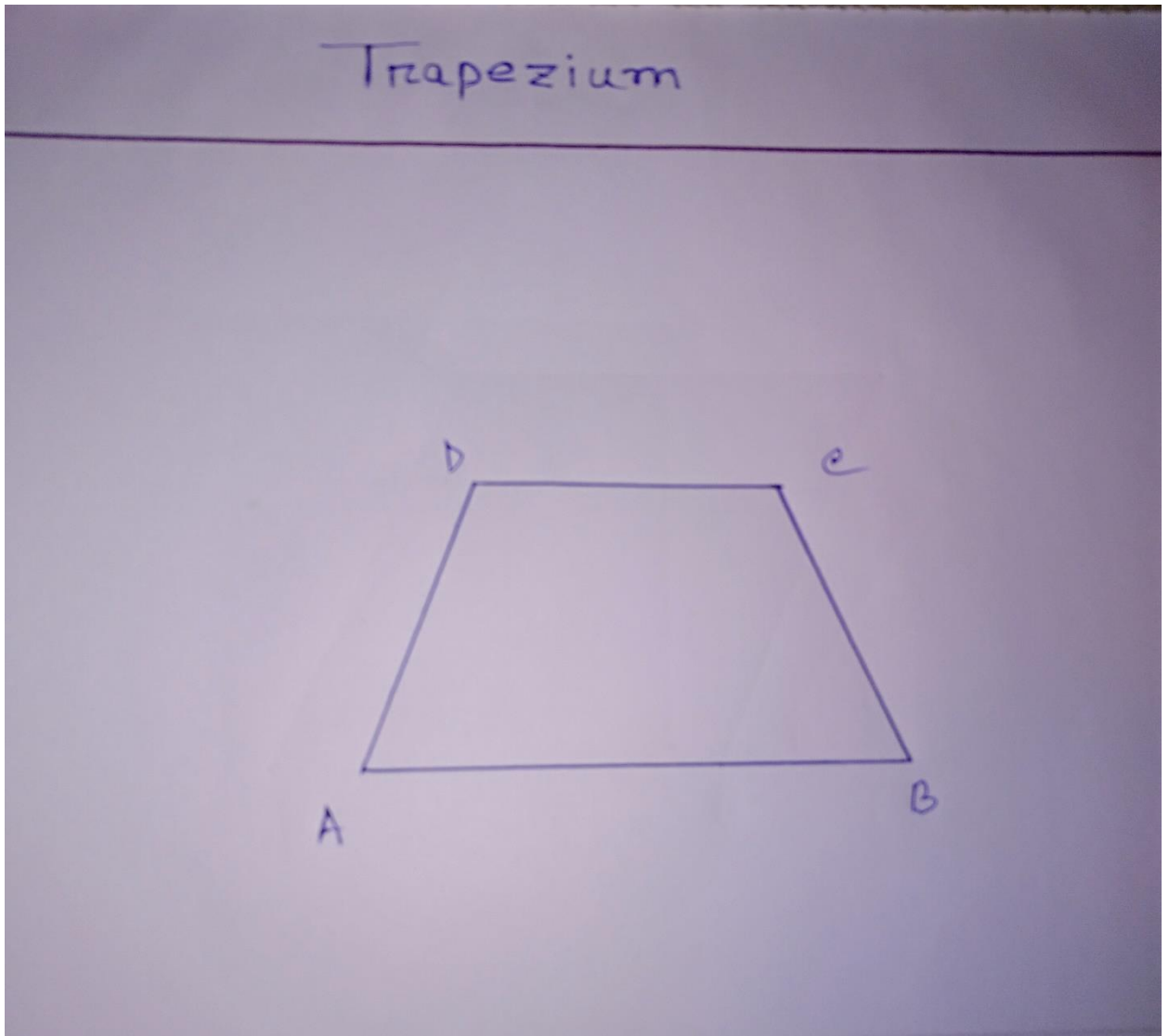
Characteristics:

i.   One pair of opposite sides are parallel
ii.   Parallel sides are not equal.
iii. The other pair of opposite sides are not parallel.

Short Questions:

1. How many angles does a quadrilateral have?
2. How many sides does a quadrilateral have?
3. How many vertices does a quadrilateral have?
4. How many diagonals does a quadrilateral have?
5. What type of angles do rectangles have?
6. What type of angles do squares have?
7. What is the sum of 4 angles of a square?
8. What is the relationship between two diagonals of a rectangle?
9. If the length of all sides of a rectangle are equal, then what is it called?
10. What kind of angle is at the corner of your math book?
11. What kind of angle is at the corner of a rectangular board?
12. Which alphabet has right angle shape?
13. What is the common characteristic between rectangle and square?

Q-1: Draw a rectangle whose length of two sides are 7 cm and 4 cm and then measure the diagonals and then write the characteristics of rectangle.

Q-2: Draw a rectangle whose length of two sides are 3 cm and 5 cm and then define it.

Q-3: Draw a square whose length of one side is 4 cm and define it. Then write its characteristics.

Q-4: An angle of a parallelogram is 70°. Draw the parallelogram and write its three characteristics.