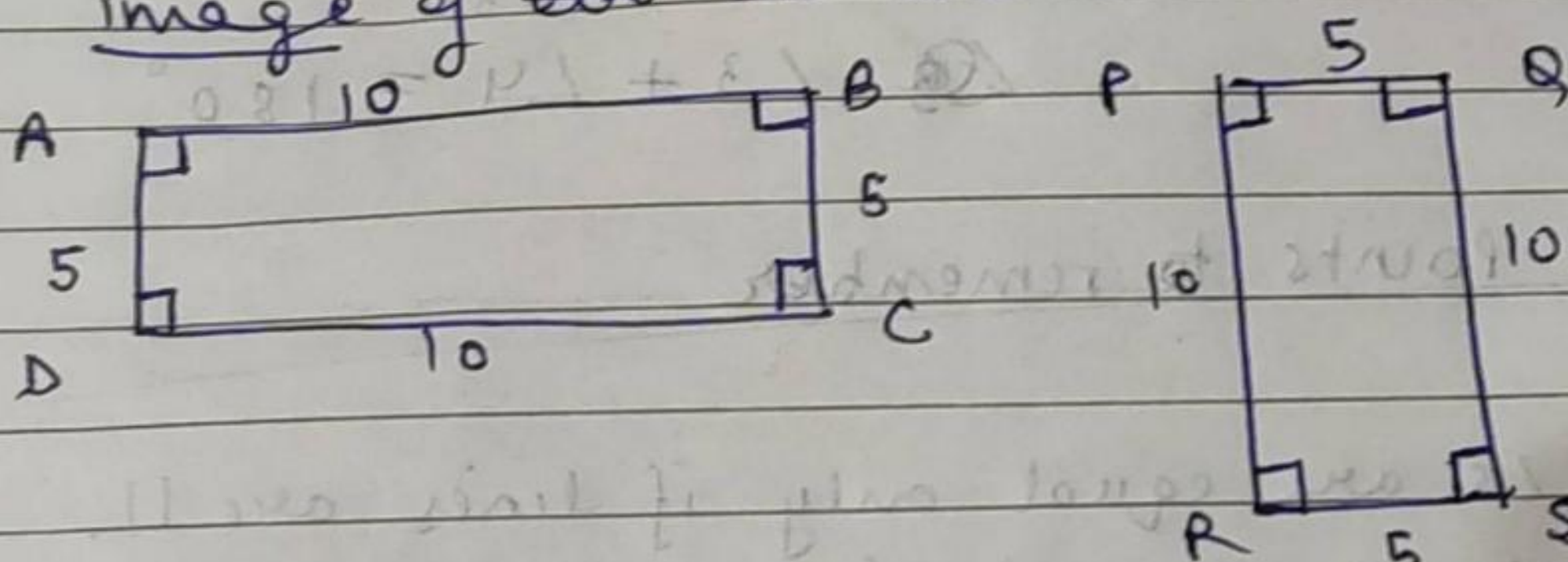# Class 2
quadrilaterals

* congruency (≅)

Two figures or objects are congruent if they have
the same shape and size or we can say is mirror
image of eth one another.

rectangle ABCD ≅ rectangle QSRP
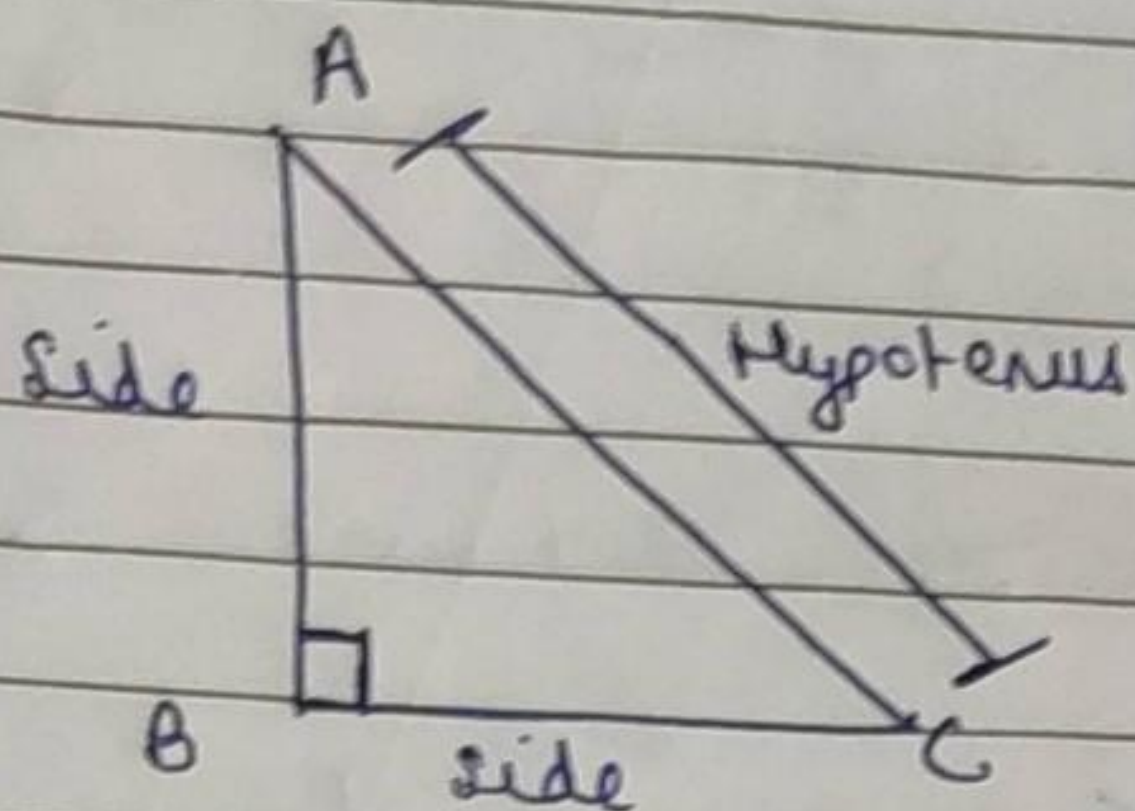
* Congruency in triangles

Properties

SSS	SAS	ASA	RHS
Side Side Side	Side Angle side	Angle Side Angle	Right Hypoteus side

△ABC ≅ △RPQ	△ABC ≅ △PQR	∠ABC = ∠DCB ∠ACB = ∠DBC BC = BC (Common) △ABC ≅ △DCB	△ABC ≅ △FDE

* Right angle triangle

In right $\triangle ABC$,
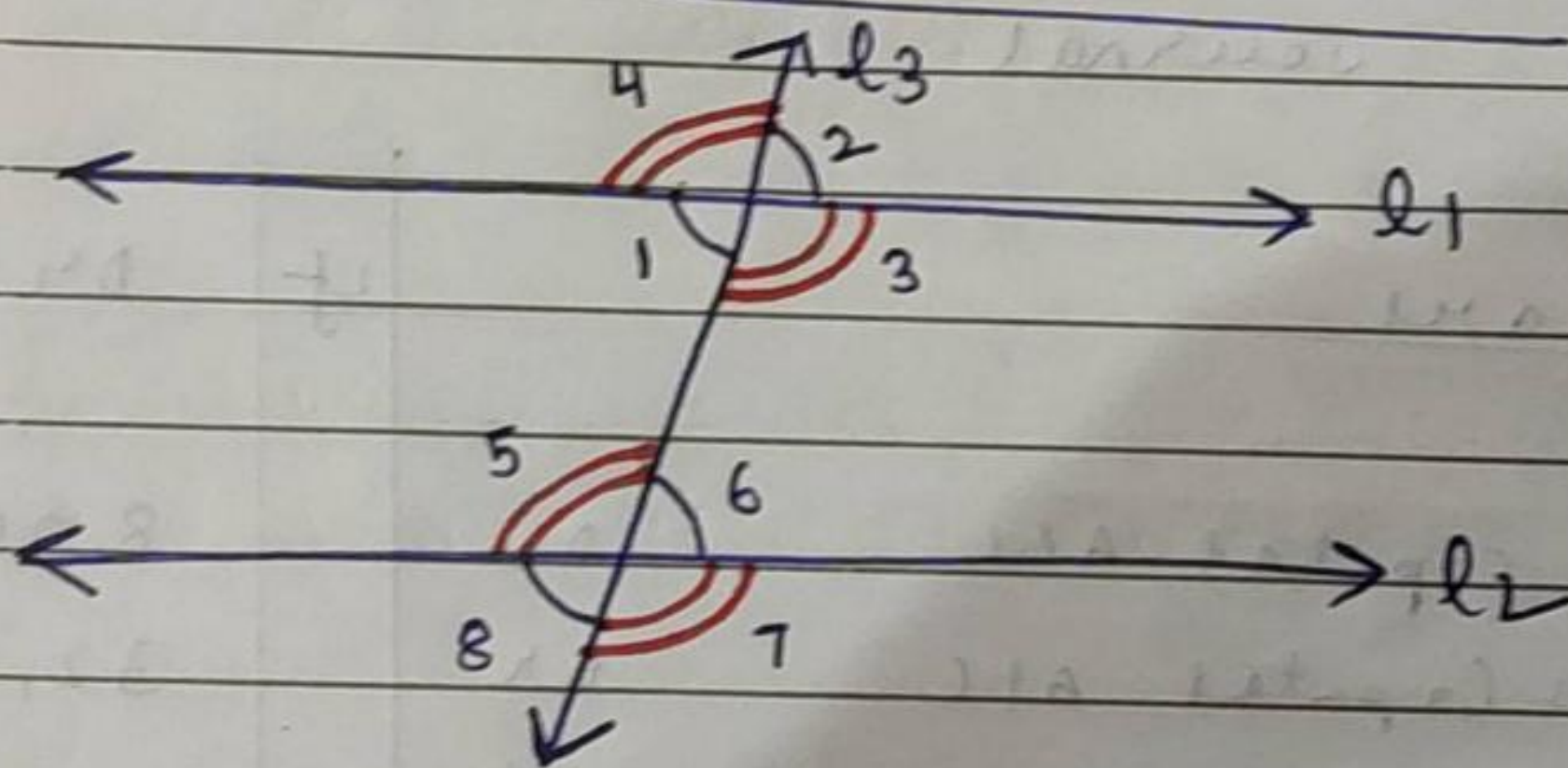
$\Rightarrow \angle ABC = 90°$

$\Rightarrow$ AB and BC are sides

$\Rightarrow$ AC is hypotenus

Hypotenus $\rightarrow$ side opposite to right angle

* Concept of parallel lines and transversal

$l3$ is transversal to line 1 and l_2

Transversal $\rightarrow$ line cutting 2 par. 2 or more parallel lines

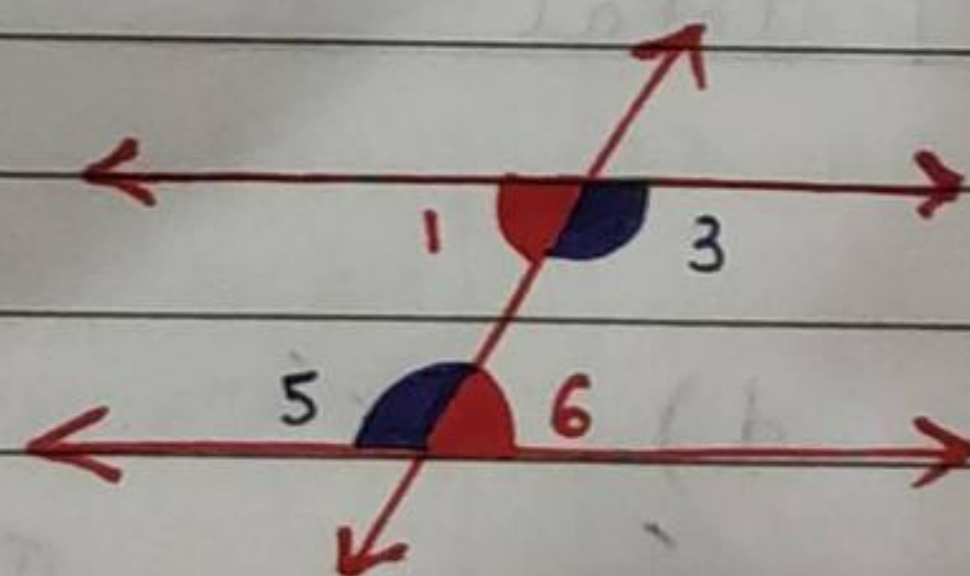*** Types of angles**

1) Alternate interior angles
   (2 pairs)

   • $\angle 1$ and $\angle 6$ are <u>alternate</u> <u>interior</u> angles
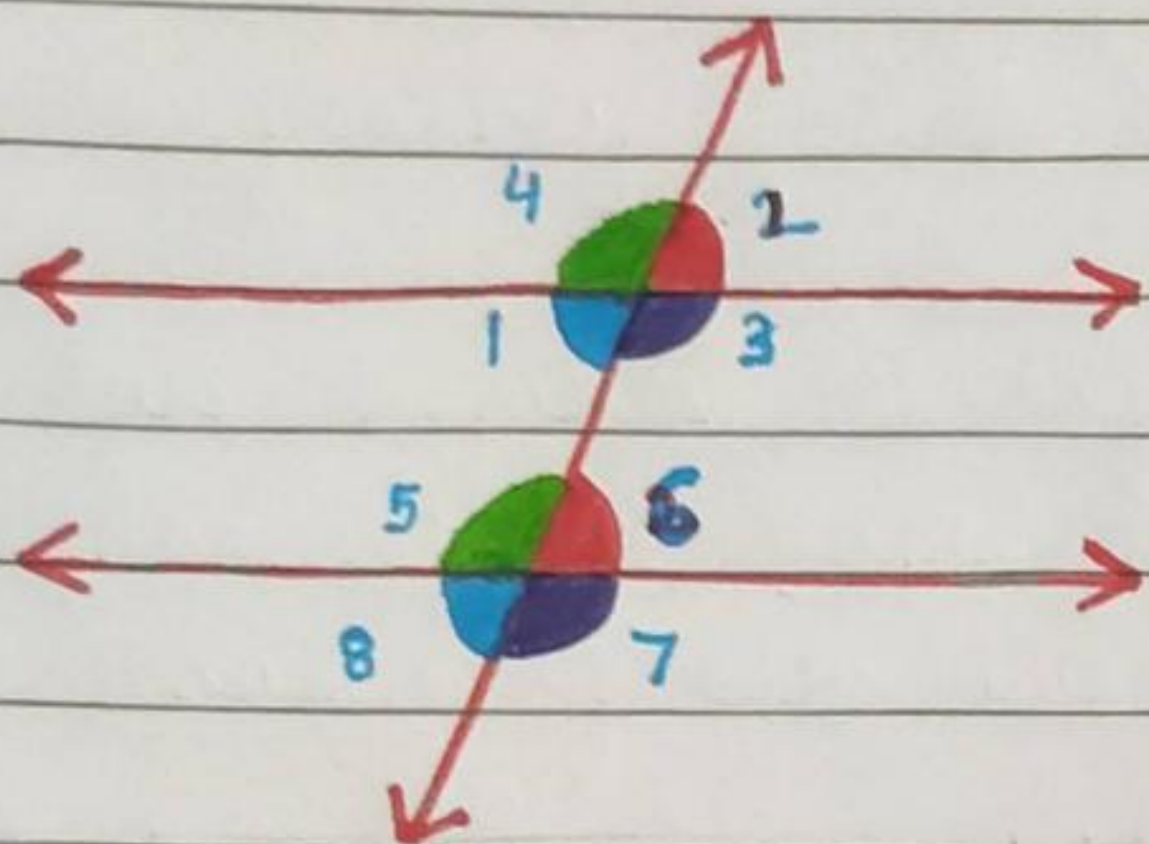   • $\angle 3$ and $\angle 5$

   opposite sides   beech mei
   of transversal

(4 pairs)

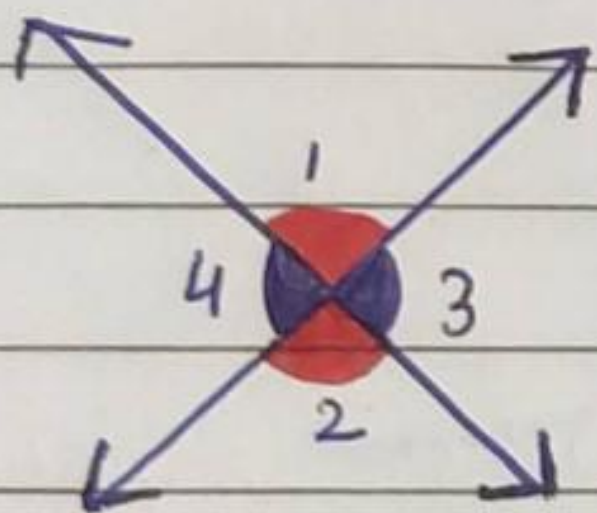2) Corresponding angles [same side of transversal dono line ke upar ya dono lines ke neeche]

∠2 and ∠6 are corresponding ∠s.
∠1 and ∠8 are corresponding ∠s.
∠4 and ∠5 are corresponding ∠s
∠3 and ∠7 are corresponding ∠s.

3) Vertically opposite angles (VOA)

∠1 and ∠2 are vertically opp. ∠s.
∠3 and ∠4 are vertically opp ∠s.
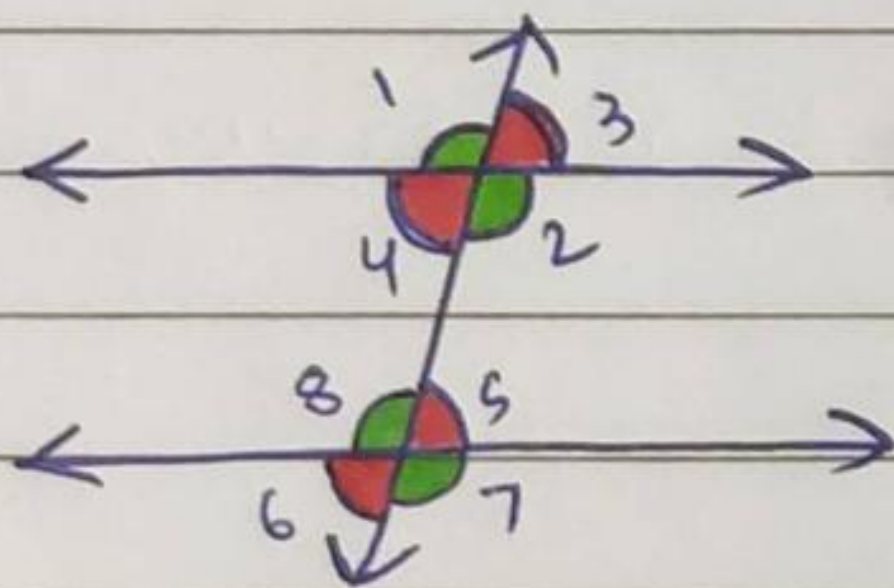
∠1 & ∠2 are VOA
∠3 & ∠4 are VOA
∠5 & ∠6 are VOA
∠7 & ∠8 are VOA

4) Angles on a line form 180°
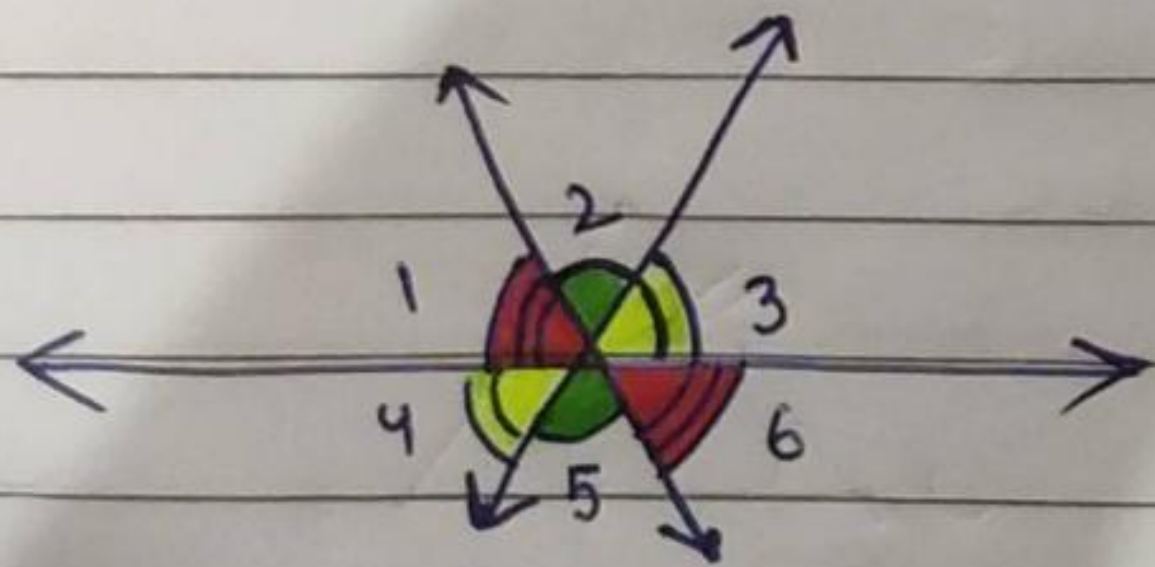
$$\angle 1 + \angle 2 + \angle 3 = 180°$$
$$\angle 1 + \angle 2 + \angle 4 = 180°$$
$$\angle 4 + \angle 5 + \angle 6 = 180°$$
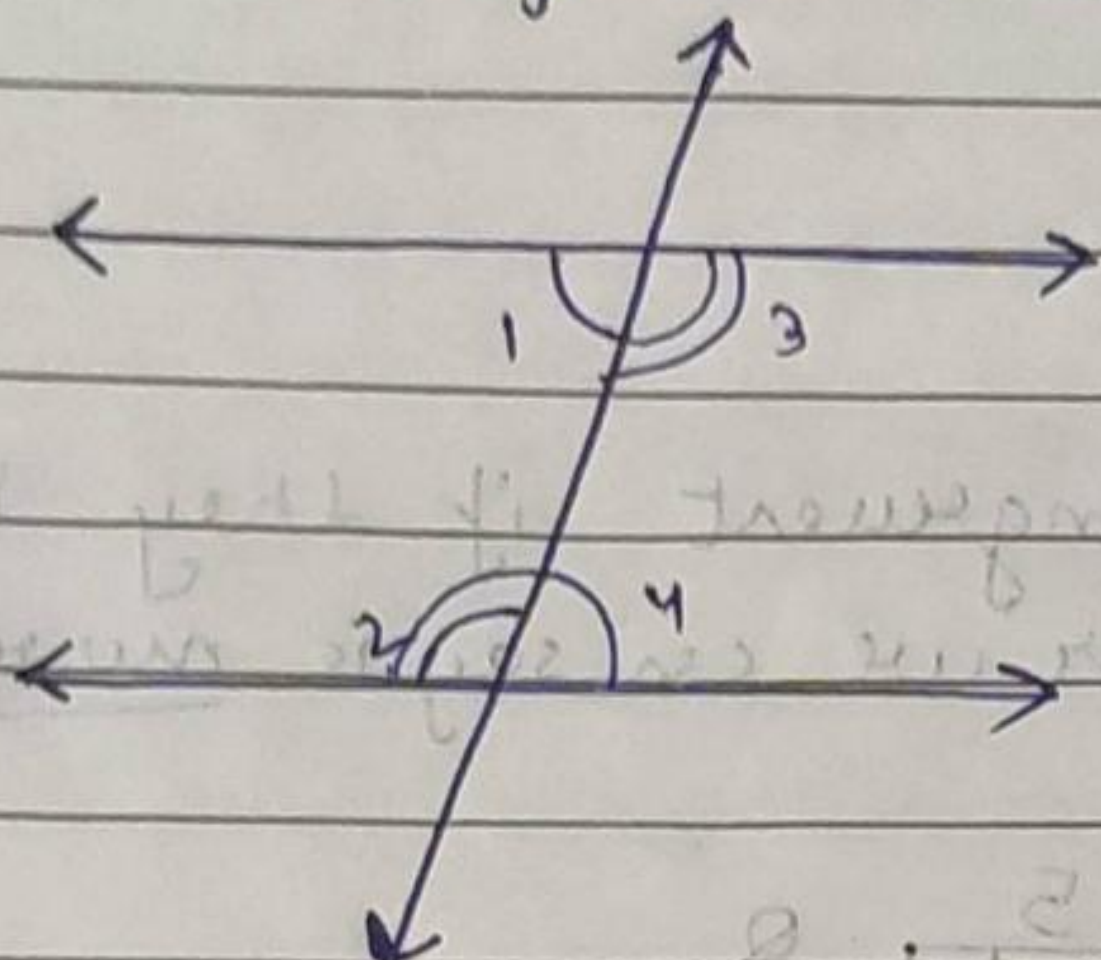$$\angle 6 + \angle 5 + \angle 3 = 180°$$
$$\angle 6 + \angle 3 + \angle 2 = 180°$$
$$\angle 1 + \angle 4 + \angle 5 = 180°$$

5) Cointerior Angles [angles in between the two parallel lines on the same side of transversal]

∠1 and ∠2 are cointerior ∠s
∠3 and ∠4 are cointerior ∠s

$$∠1 + ∠2 = 180°$$
$$∠3 + ∠4 = 180°$$

Points to remember

A] * 1) Alternate ∠s are equal only if lines are ||.
2) Corresponding ∠s are equal only if lines are ||.
3) Cointerior ∠s sum upto 180° only if lines are ||.

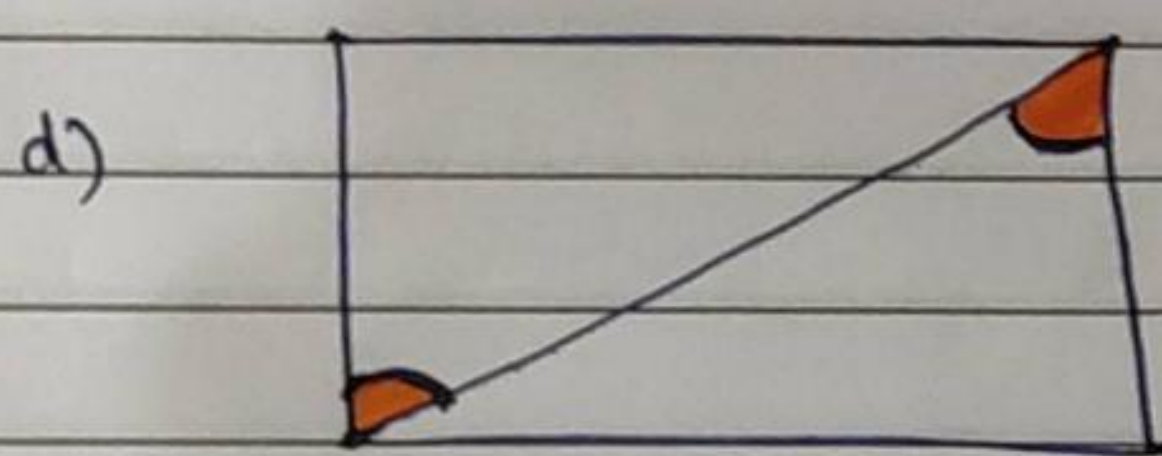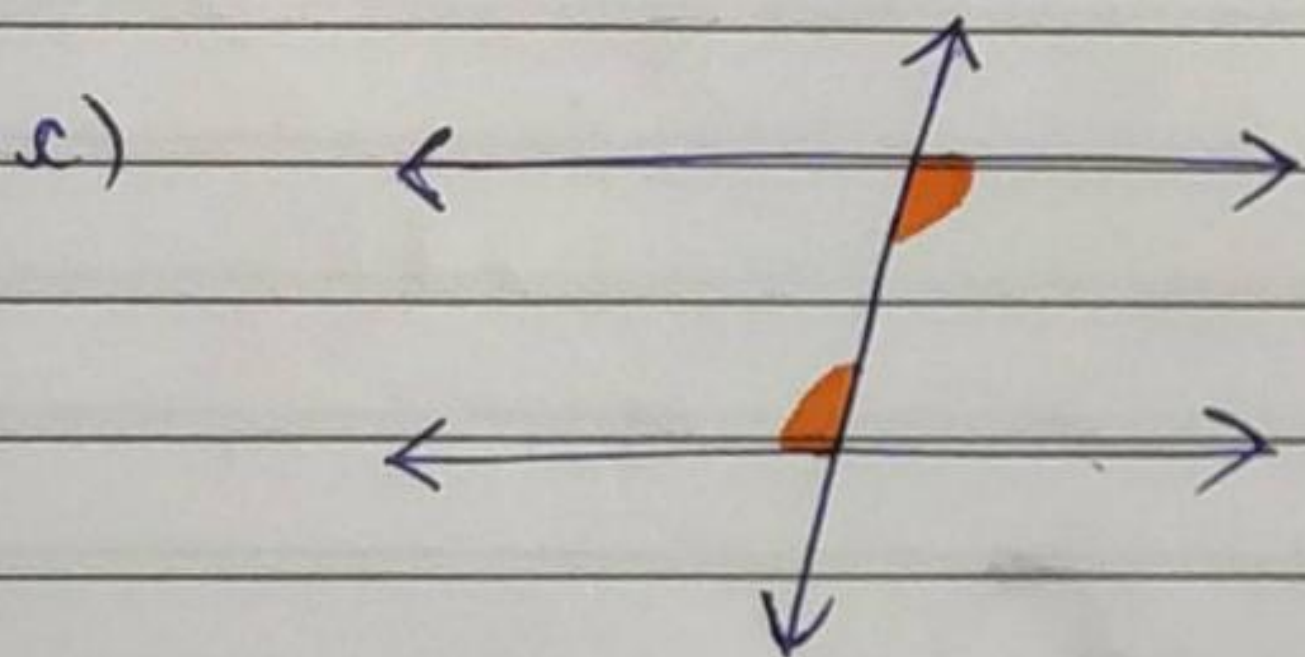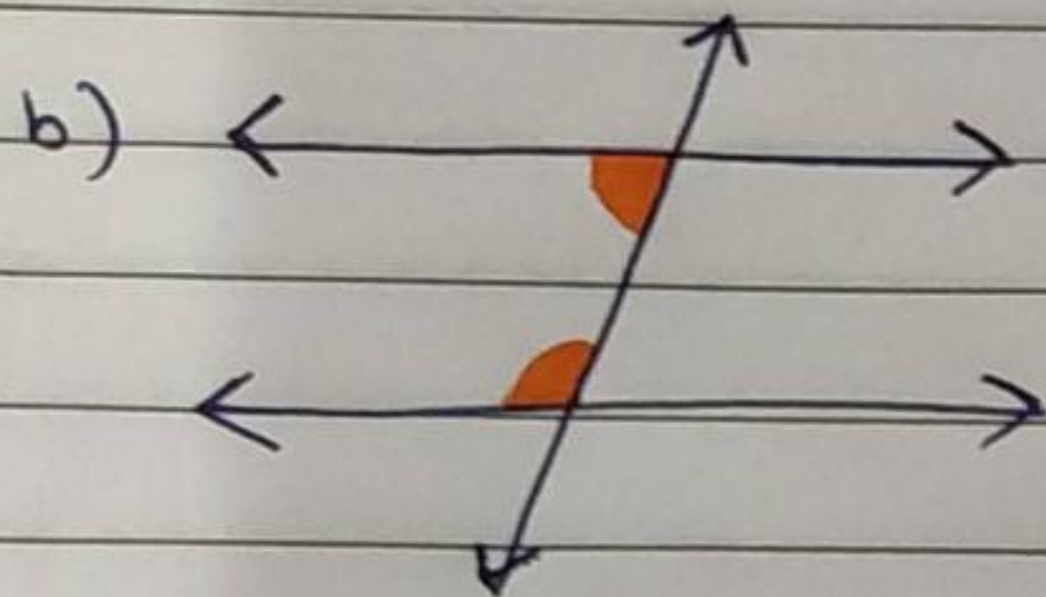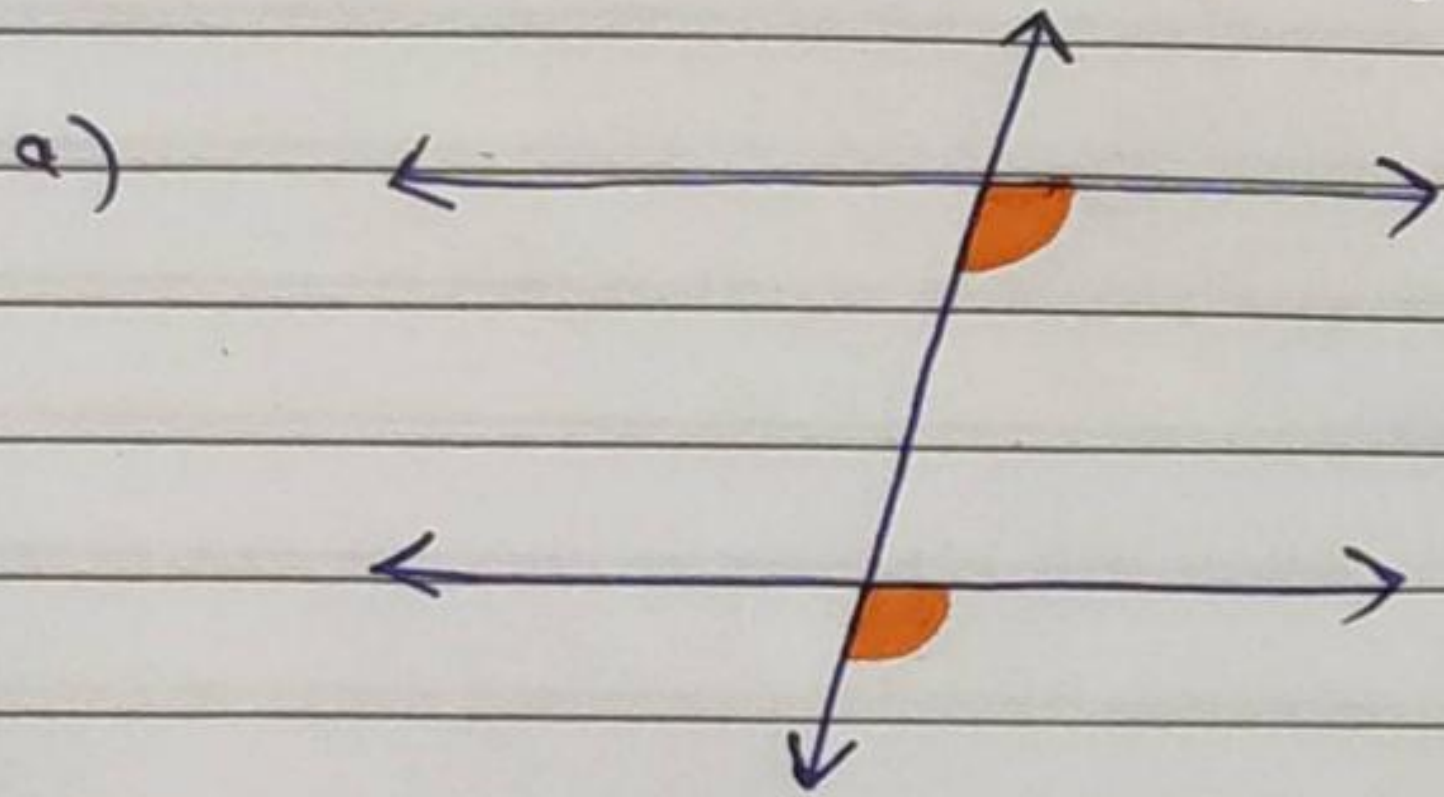B] * 1) Vertically opposite angles are always equal and are formed at intersection point of any 2 lines
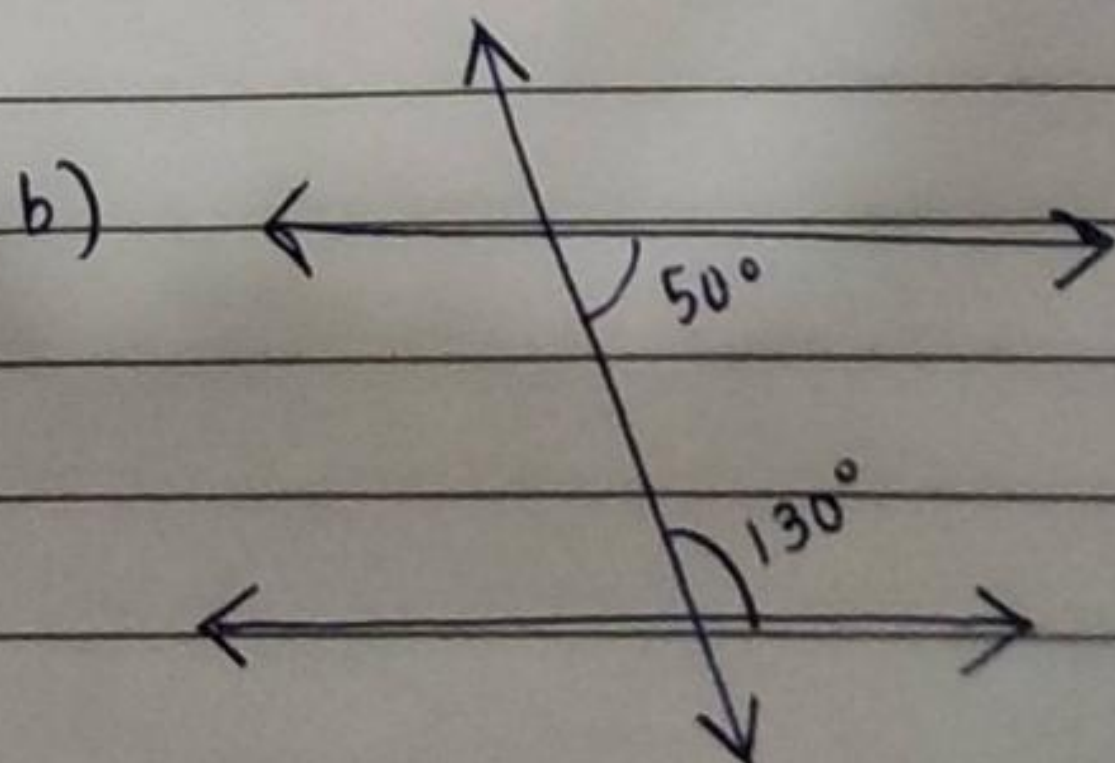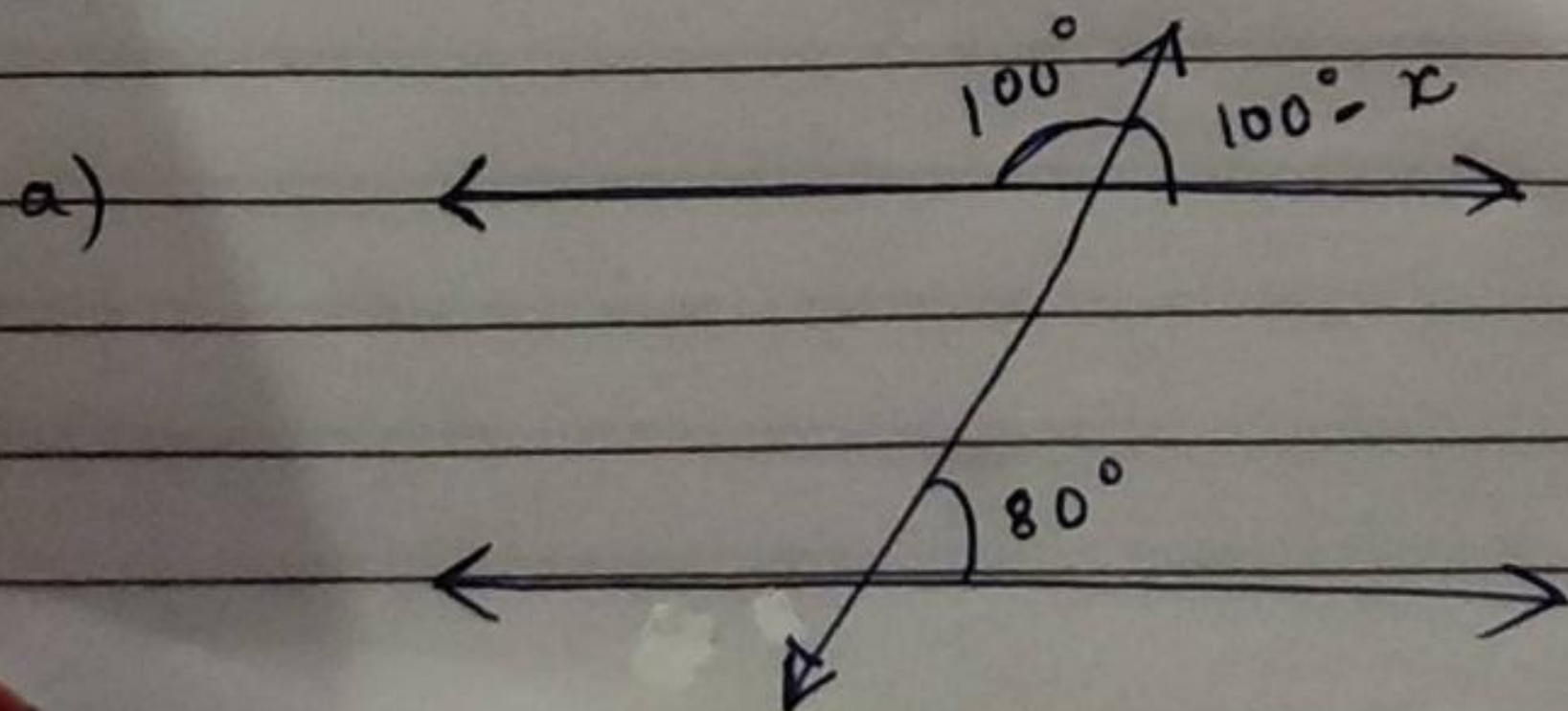
2) Angles on a straight line always sum upto 180°.

Worksheet
Class 2 quadrilaterals

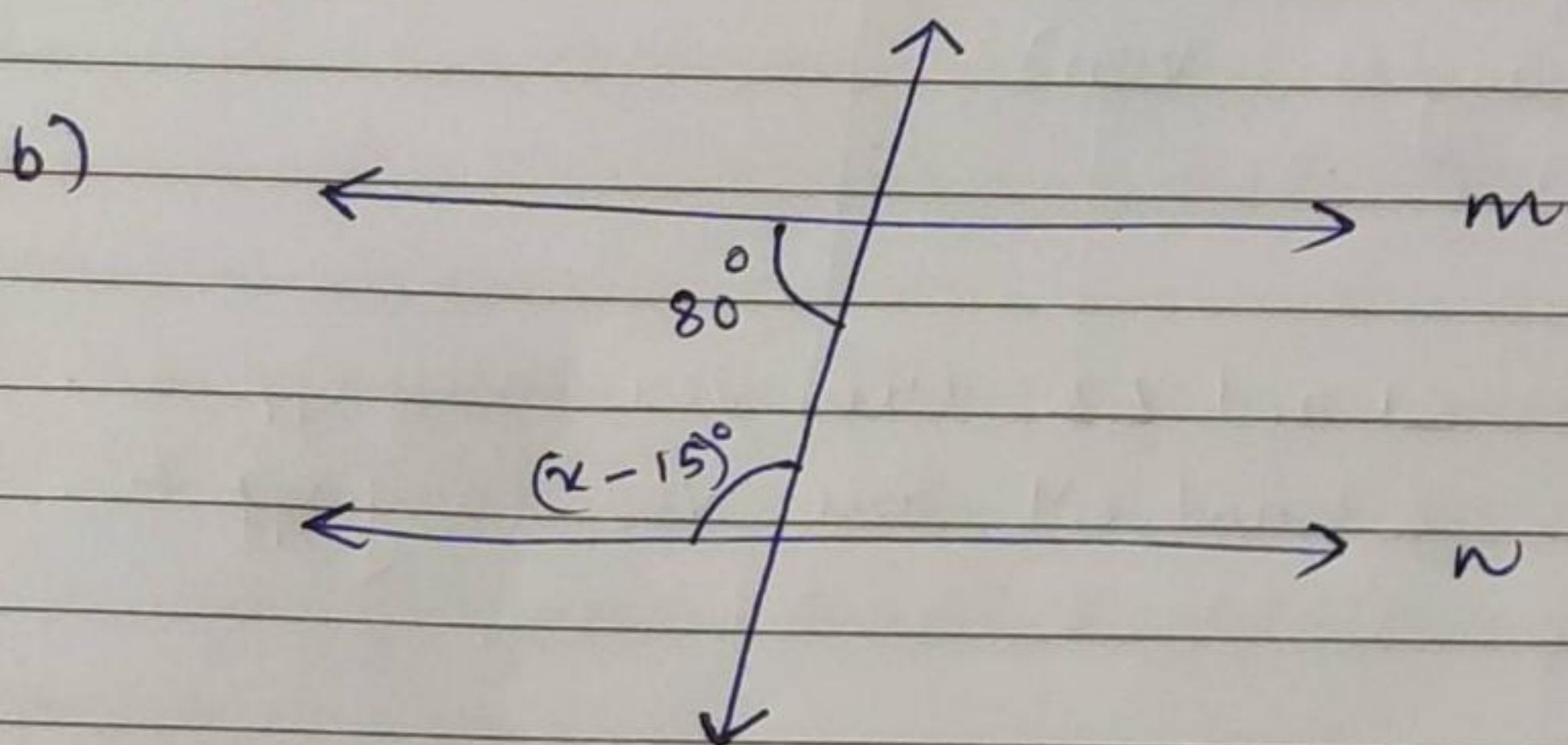**Q1.** Identify the type of angles shaded in following diagrams

a)

b)

c)

d)

& e)

f)

f)

g)
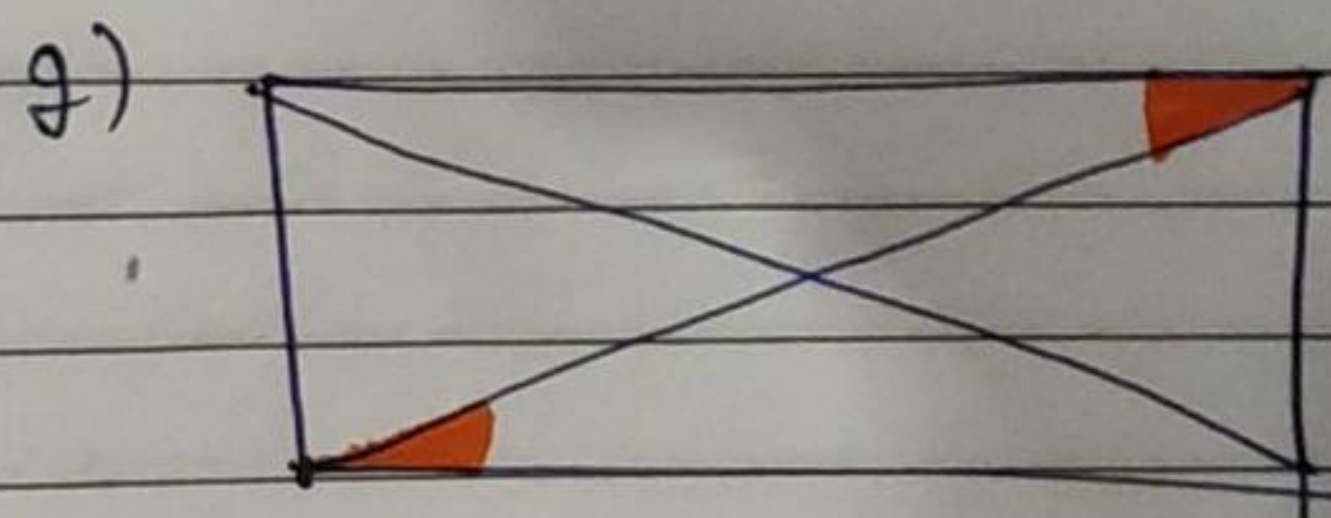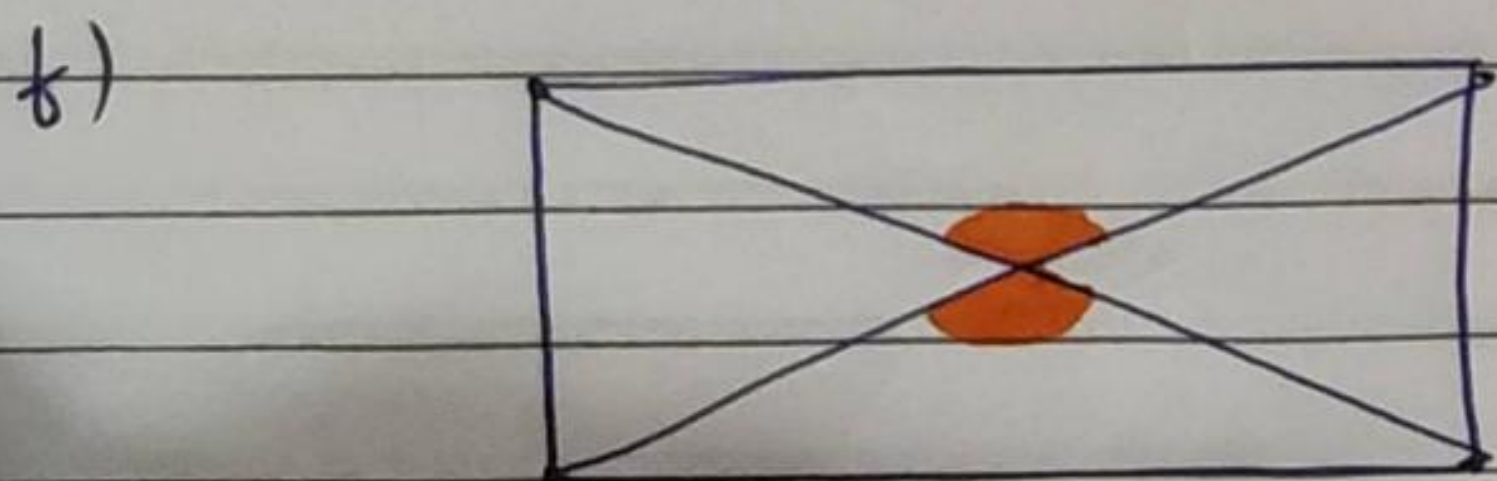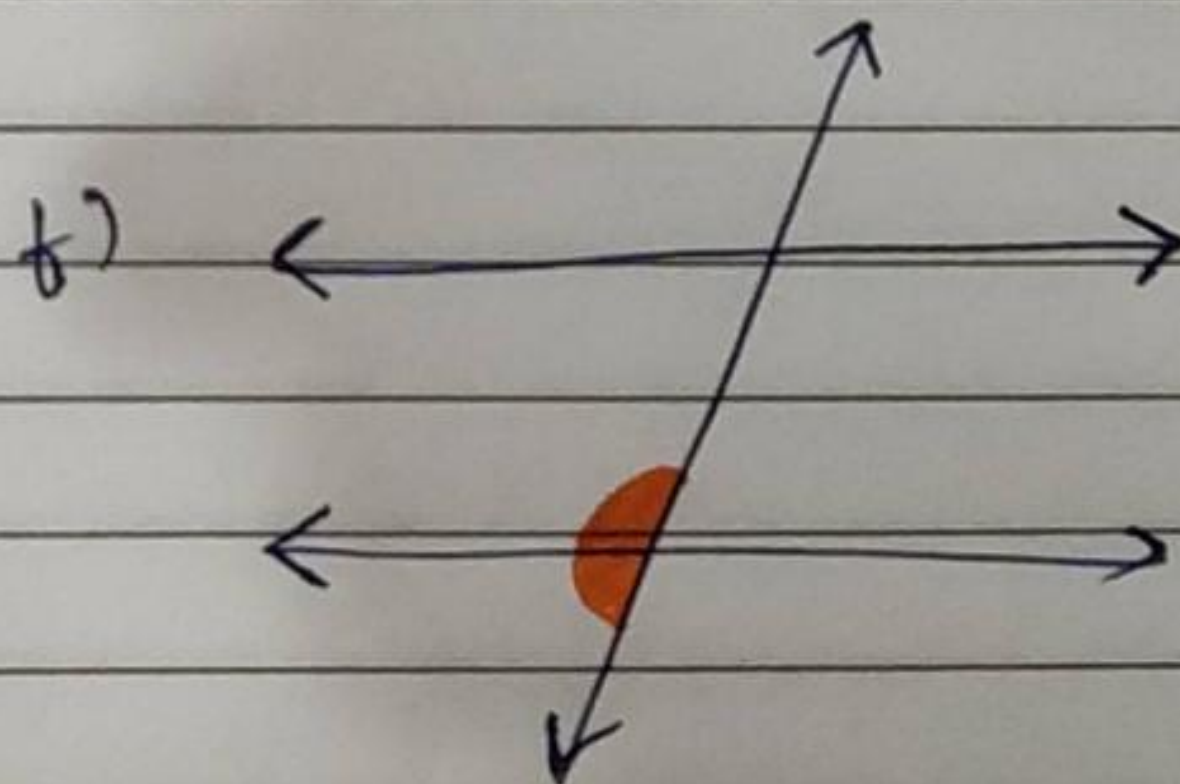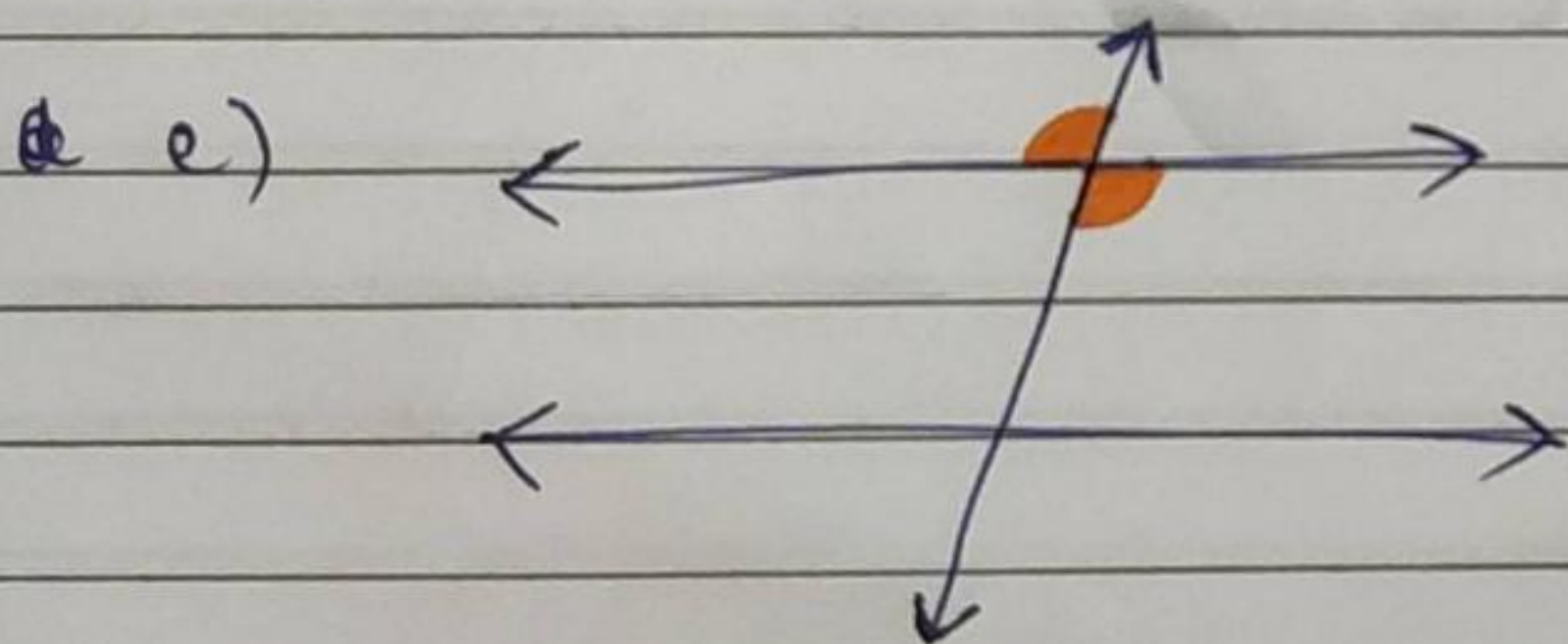
Q2. Prove that the lines are parallel

a)

$100°$

$100°- x$

$80°$

b)

$50°$

$130°$

Q3. Find the value of x which makes $m \parallel n$.

a)

$(6x - 44)°$

$4x$

m

n

b)

$80°$

$(x - 15)°$

m

n
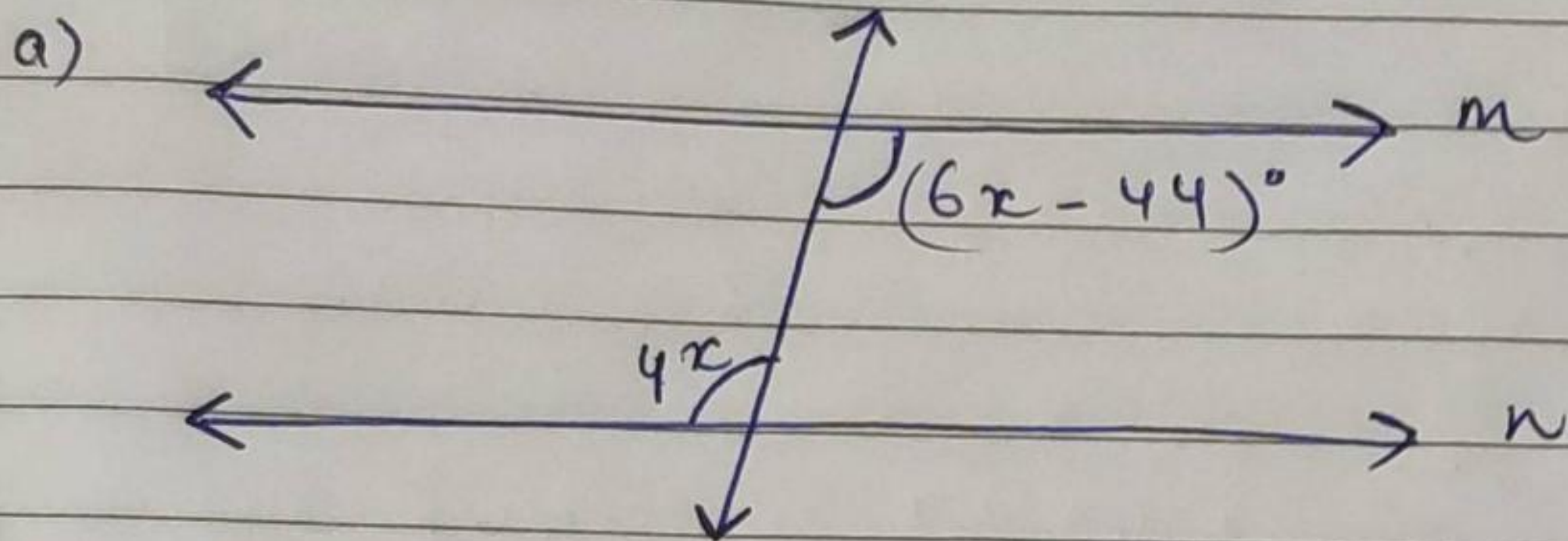
Ques 4.
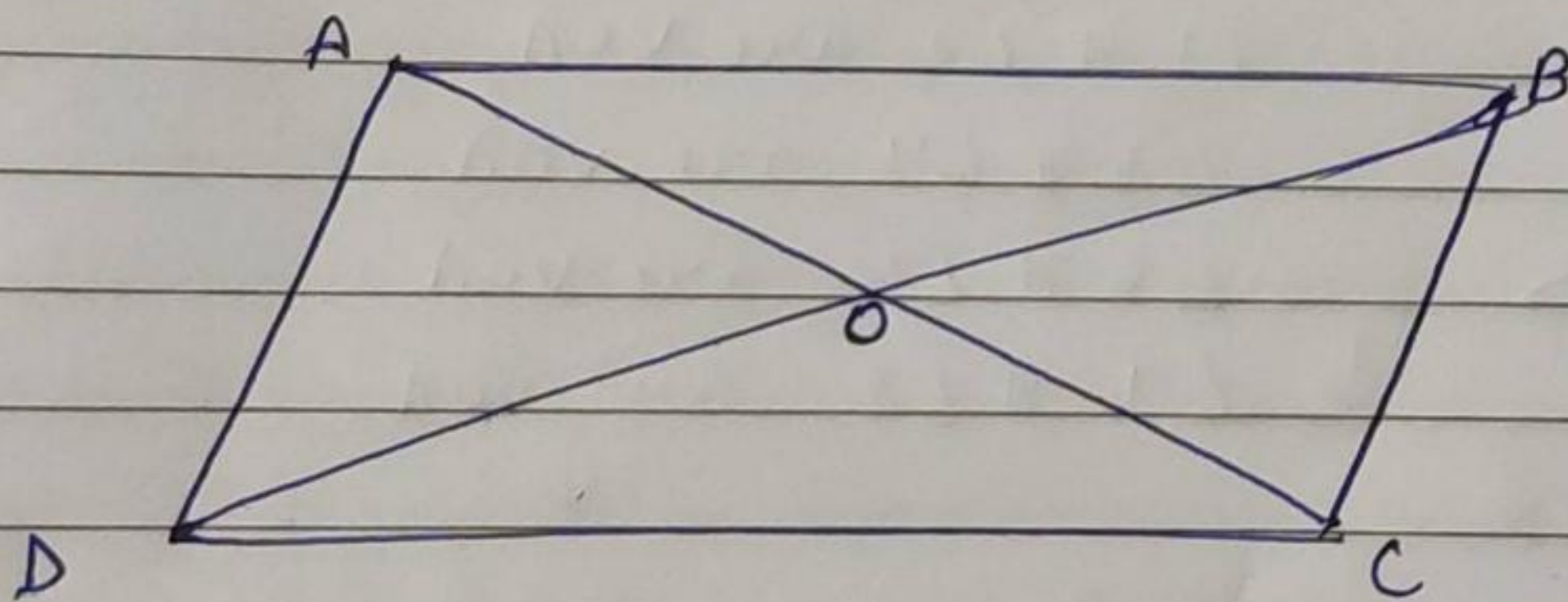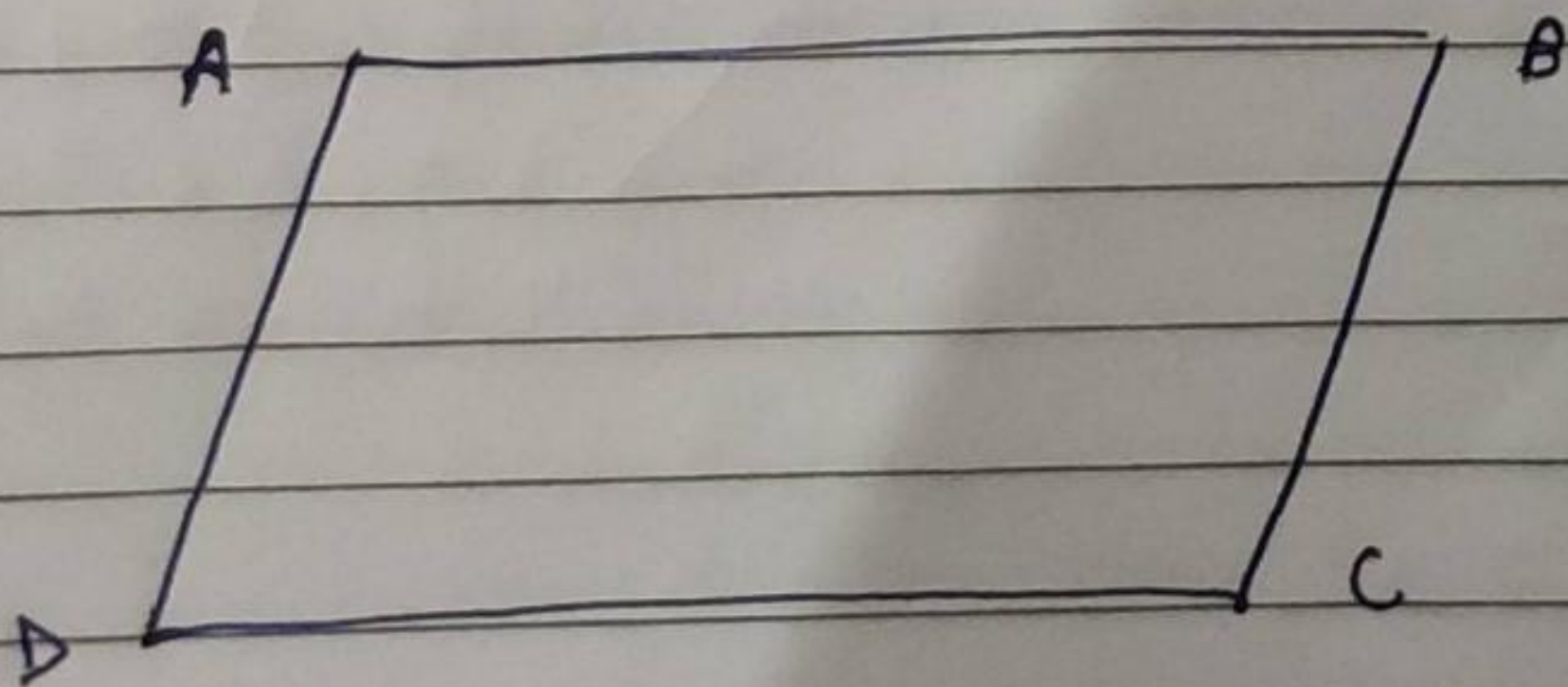

Given : AD $\parallel$ BC   AD = BC

          AB $\parallel$ DC   AB = DC

To prove : $\triangle AOB \cong \triangle \angle COD$

Ques 5.

Given : AB $\parallel$ CD

         AD $\parallel$ BC

To prove : i) $\angle A = \angle C$

           ii) AD = BC