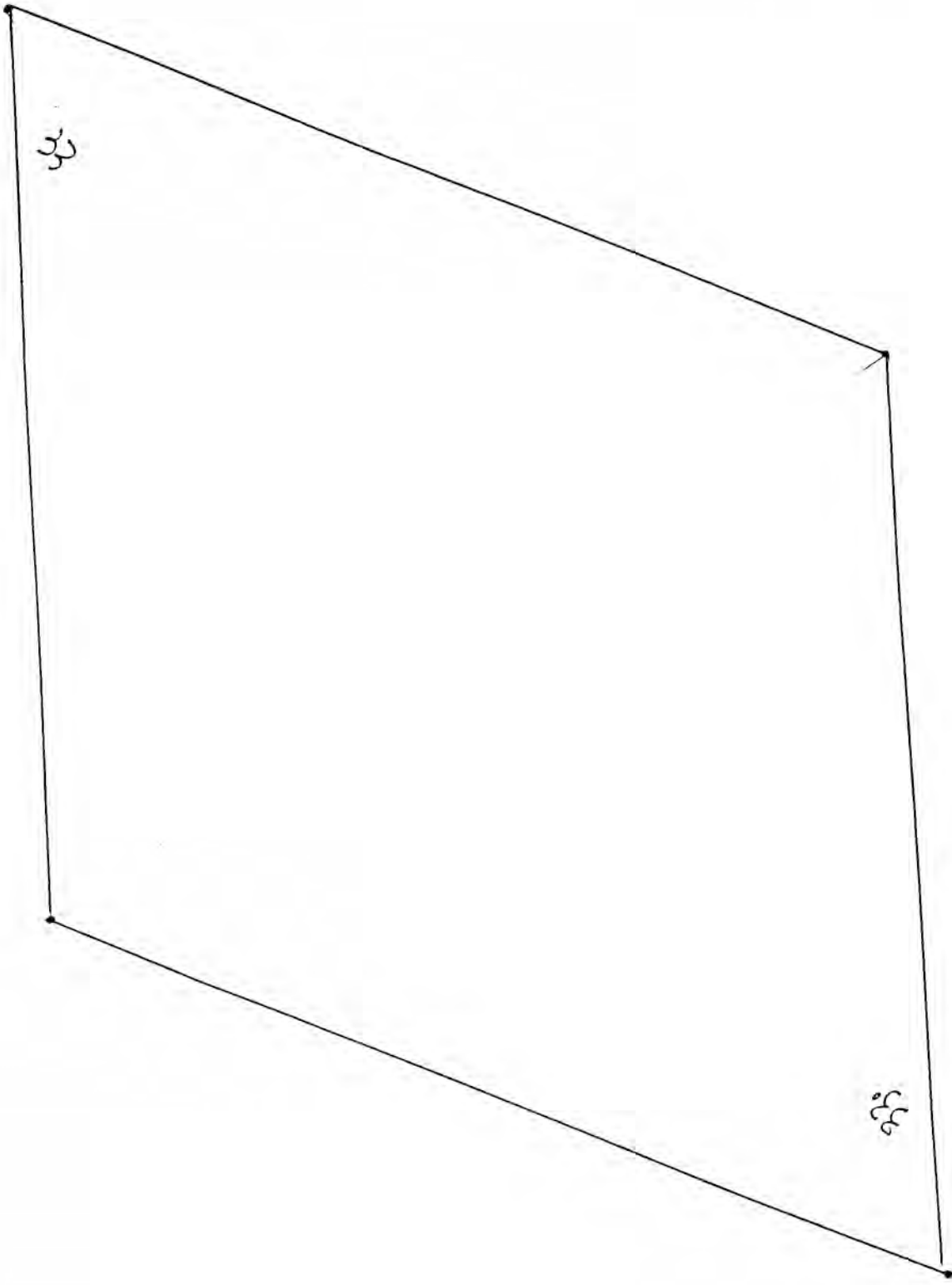


Conjecture

Blk 1
3/3/09

- square : 2 long lines, has to intersect right at the center, and lines have to make a right angle
- rectangle : 2 long lines, has to intersect right at the center, but the measure of angles of the 2 lines don't matter.
- isosceles trapezoid : 2 long lines, has to intersect where the 2 are equidistant from the ends, measures of angles don't matter.
- parallelogram :

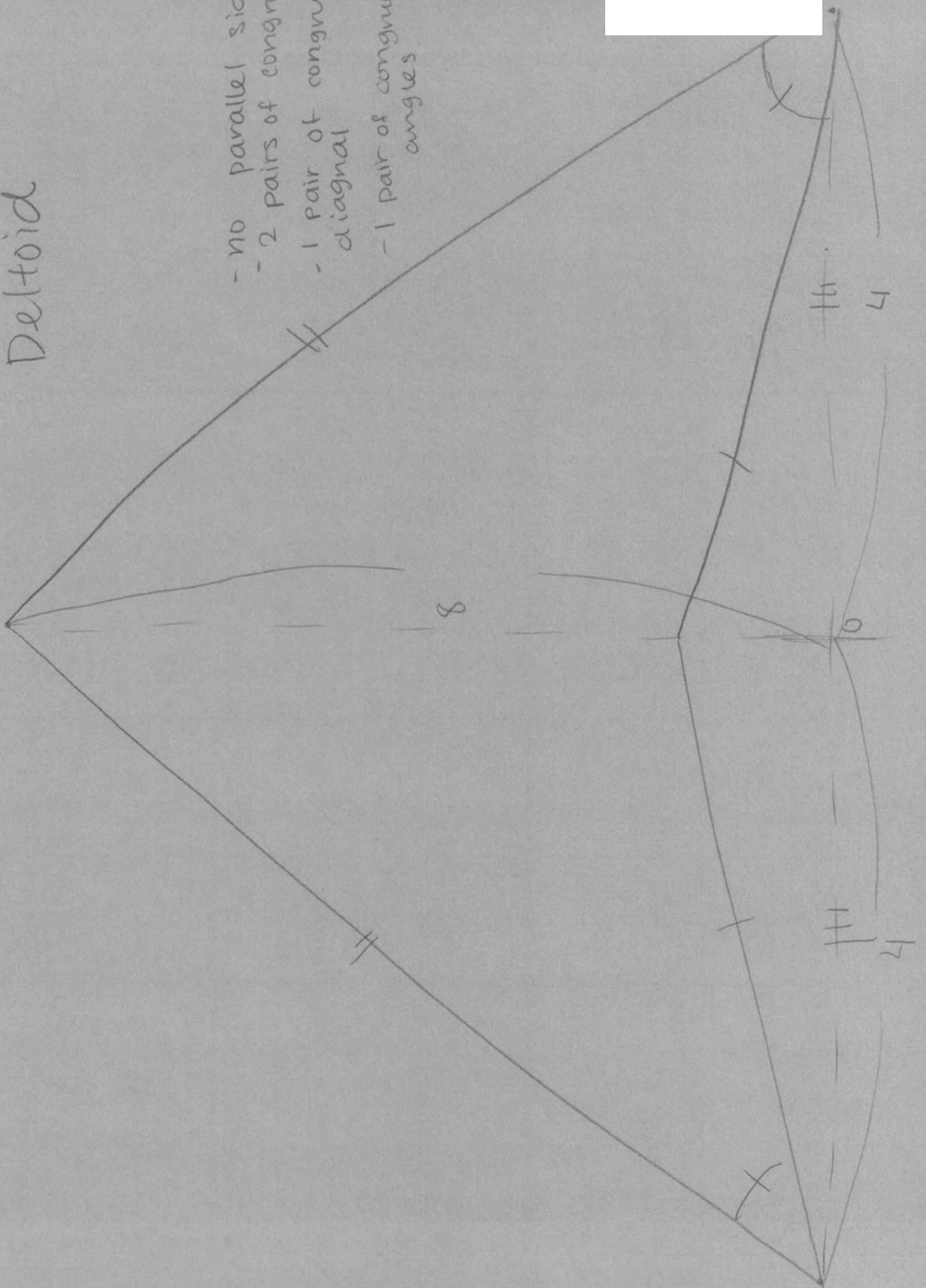
* to prove that the lines are parallel, you have to measure the alternate interior angles, which are

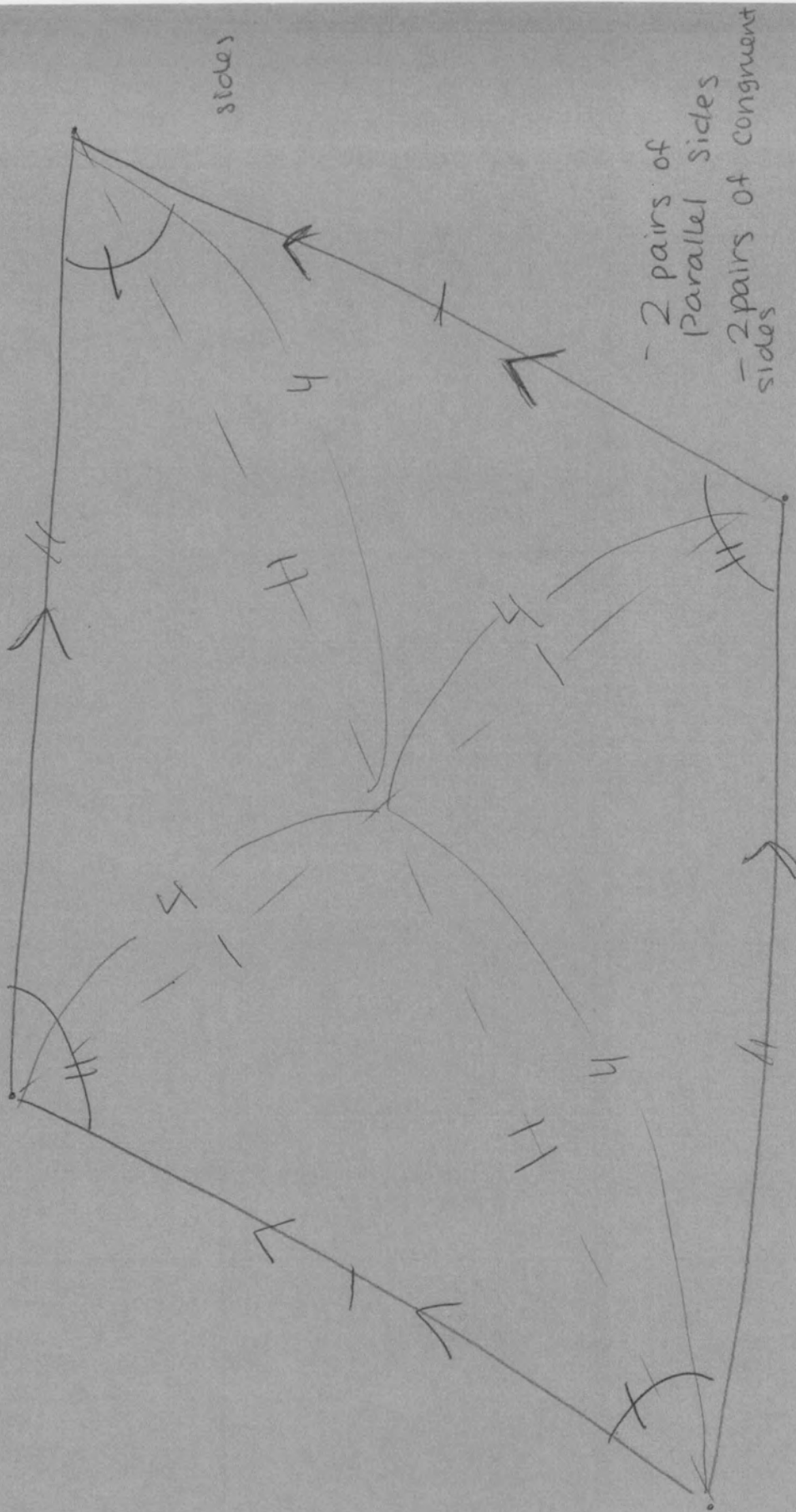


* You can always measure the alternate interior angles because you already have the diagonals drawn out

Deltoid

- no parallel sides
- 2 pairs of congruent
- 1 pair of congruent diagonal
- 1 pair of congruent angles

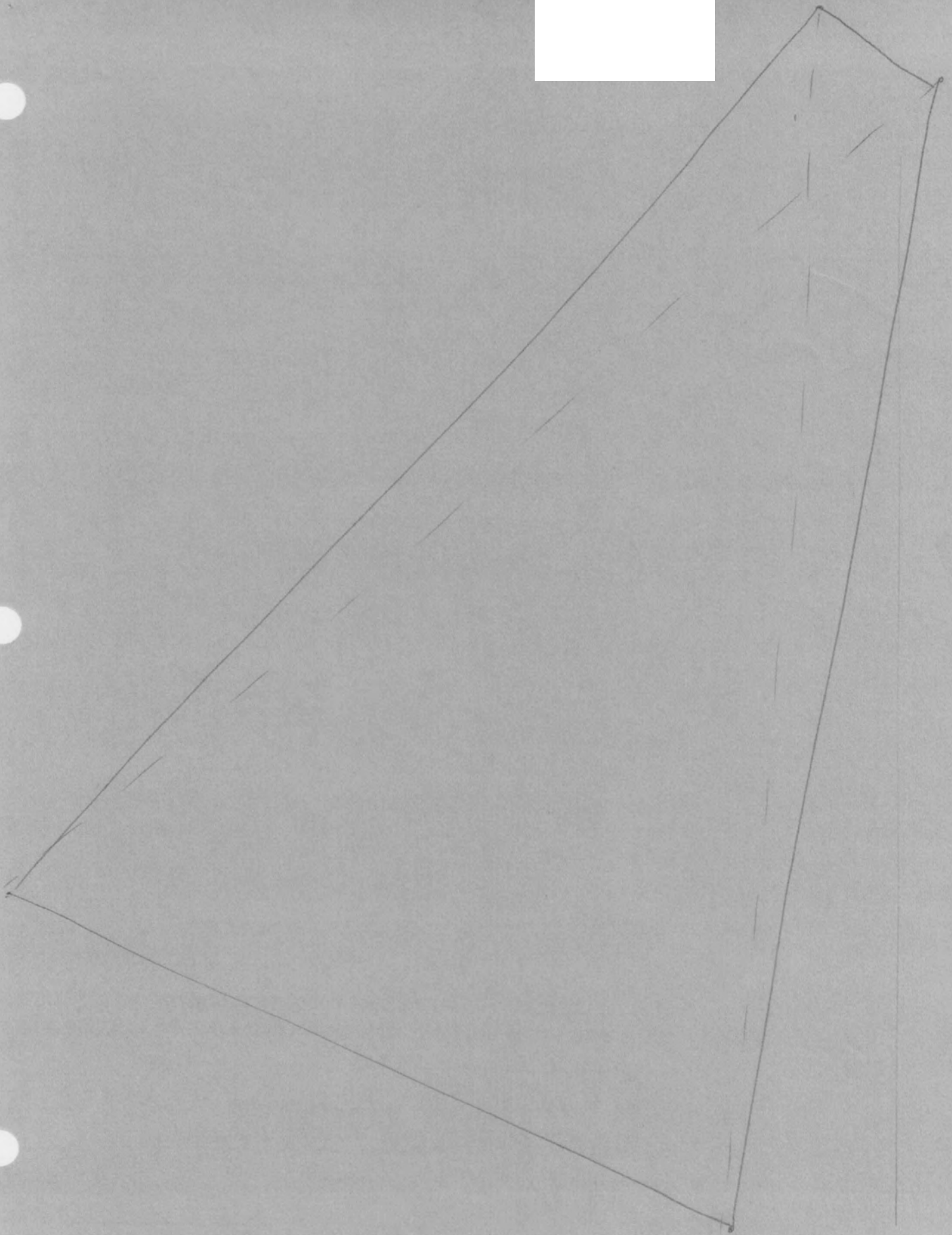


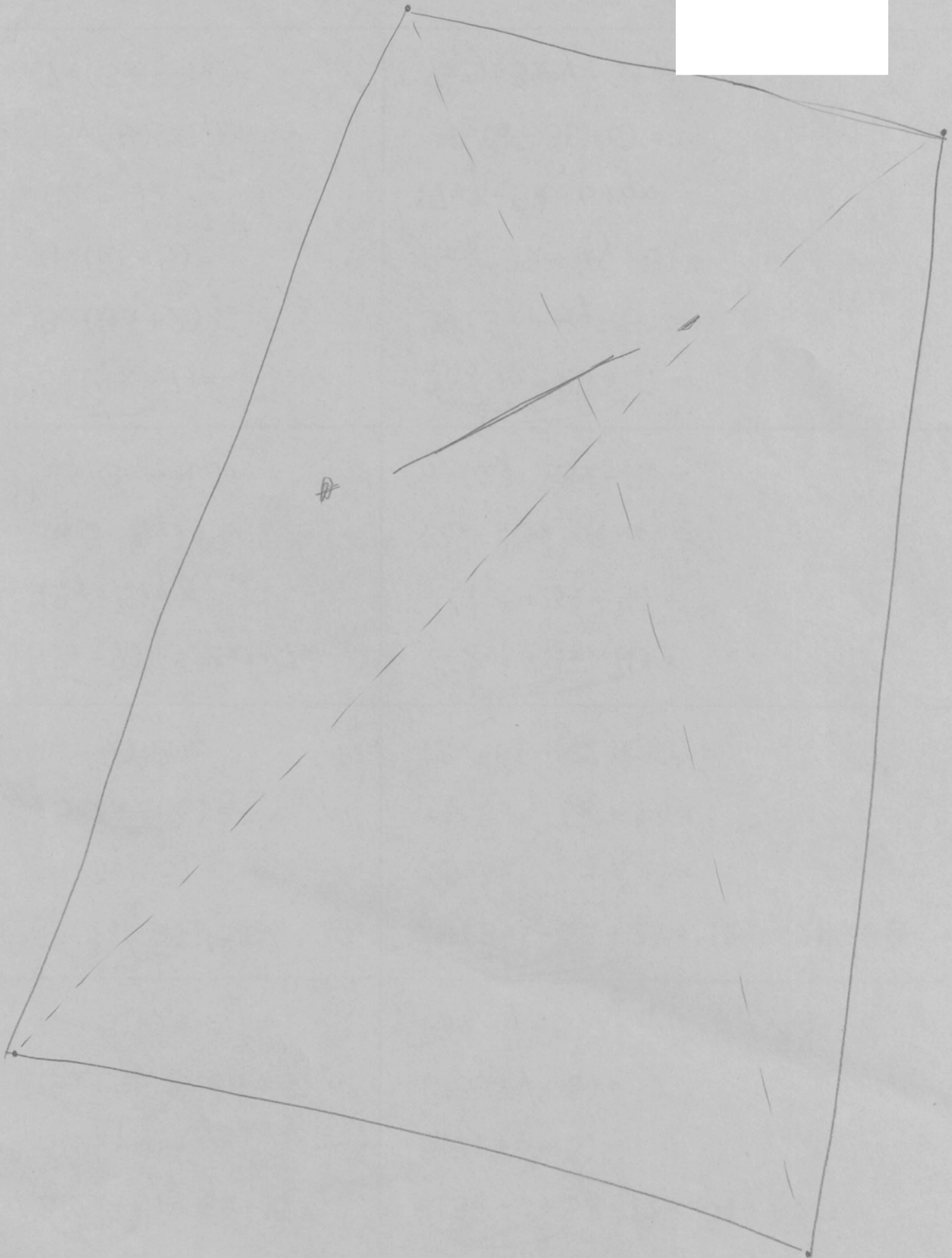


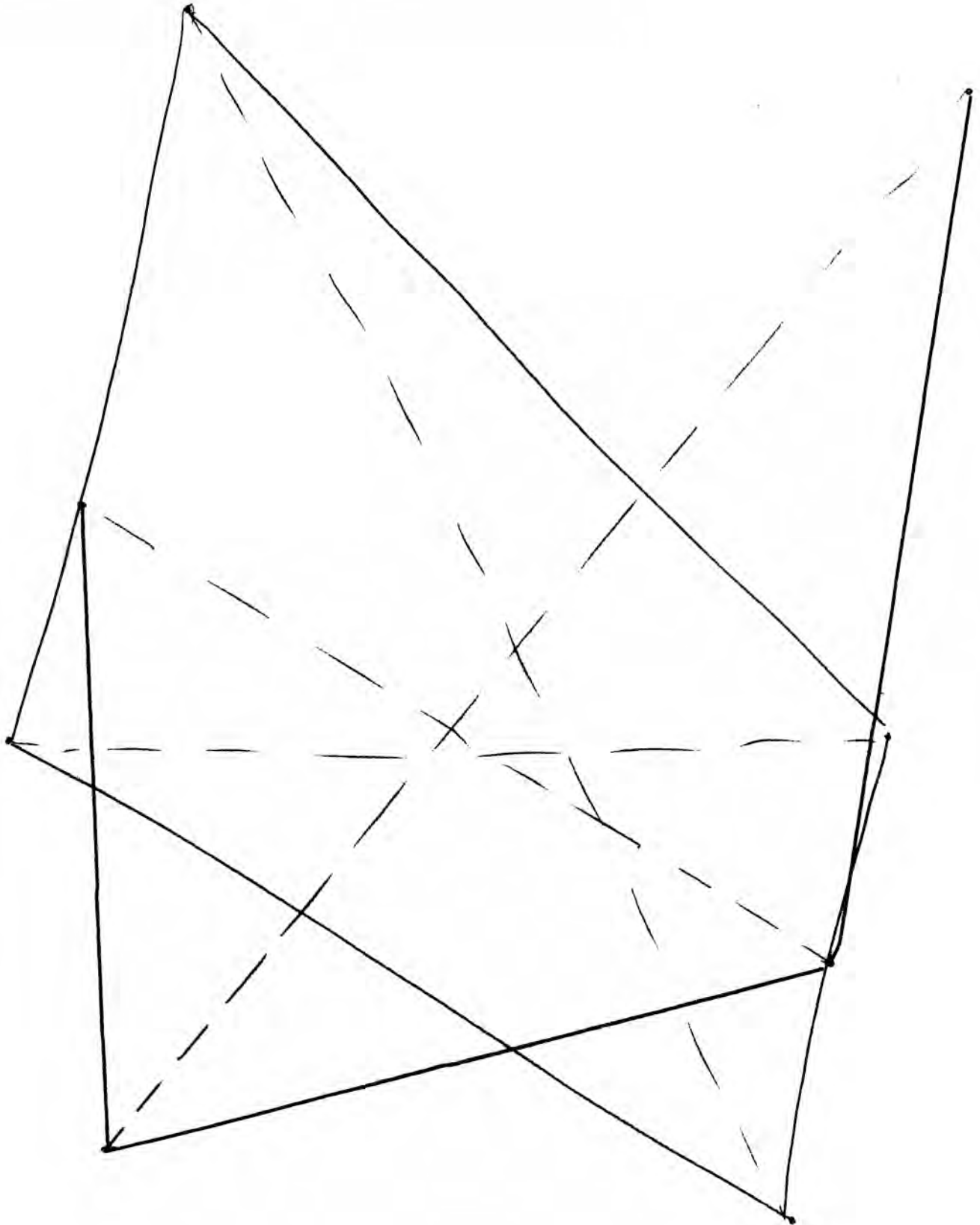
- 2 pairs of Parallel Sides
- 2 pairs of congruent sides
- 2 pairs of congruent diagonals

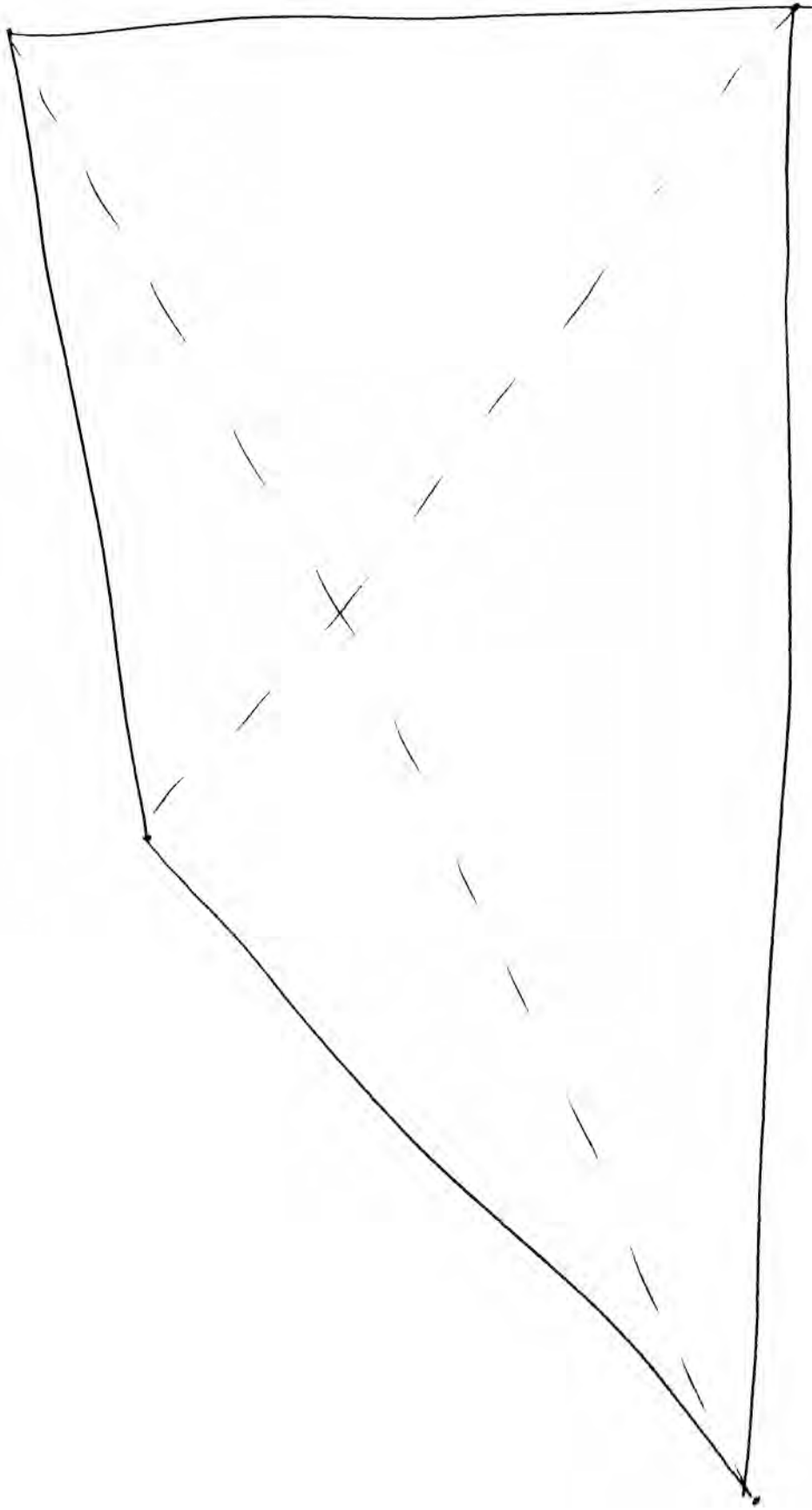
- 2 pairs of congruent angles
- long + short
- intersect at middle

Parallelogram



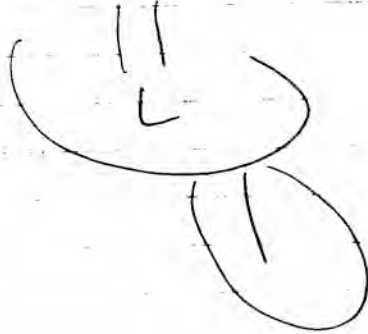






Bk1 3/3/09

Question: how do we know for sure that the lines
are always parallel without measuring the
alternate interior angles ????



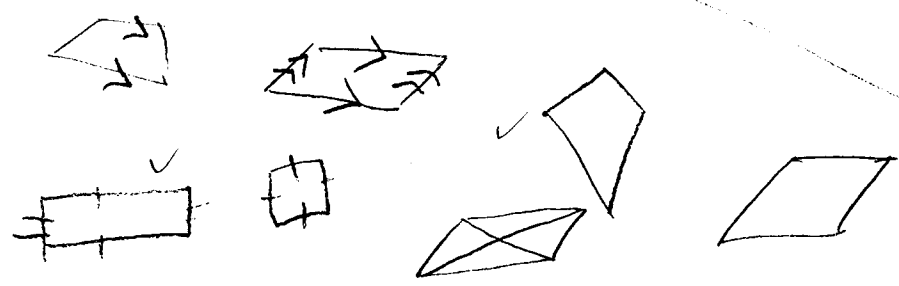
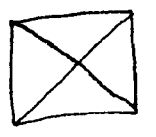
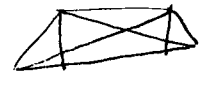
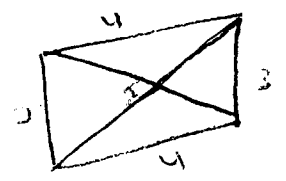
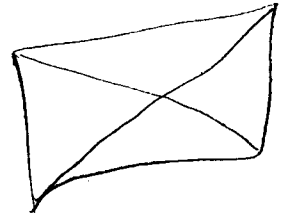
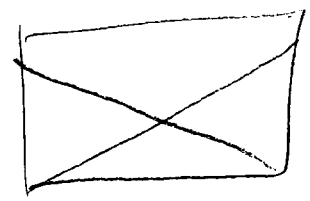
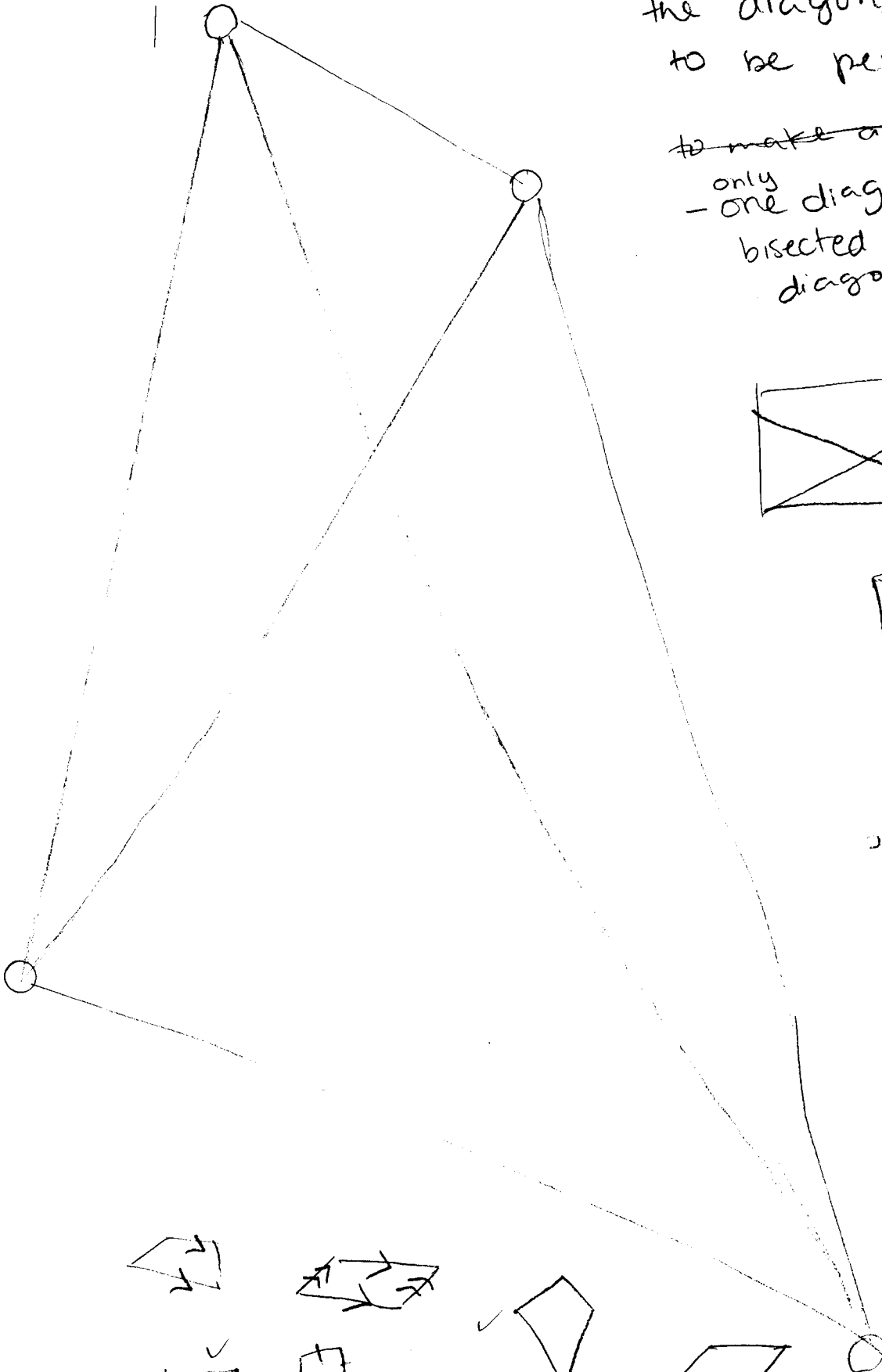
What I think I did well: I kept notes when I made a shape and wrote conjectures for some shapes

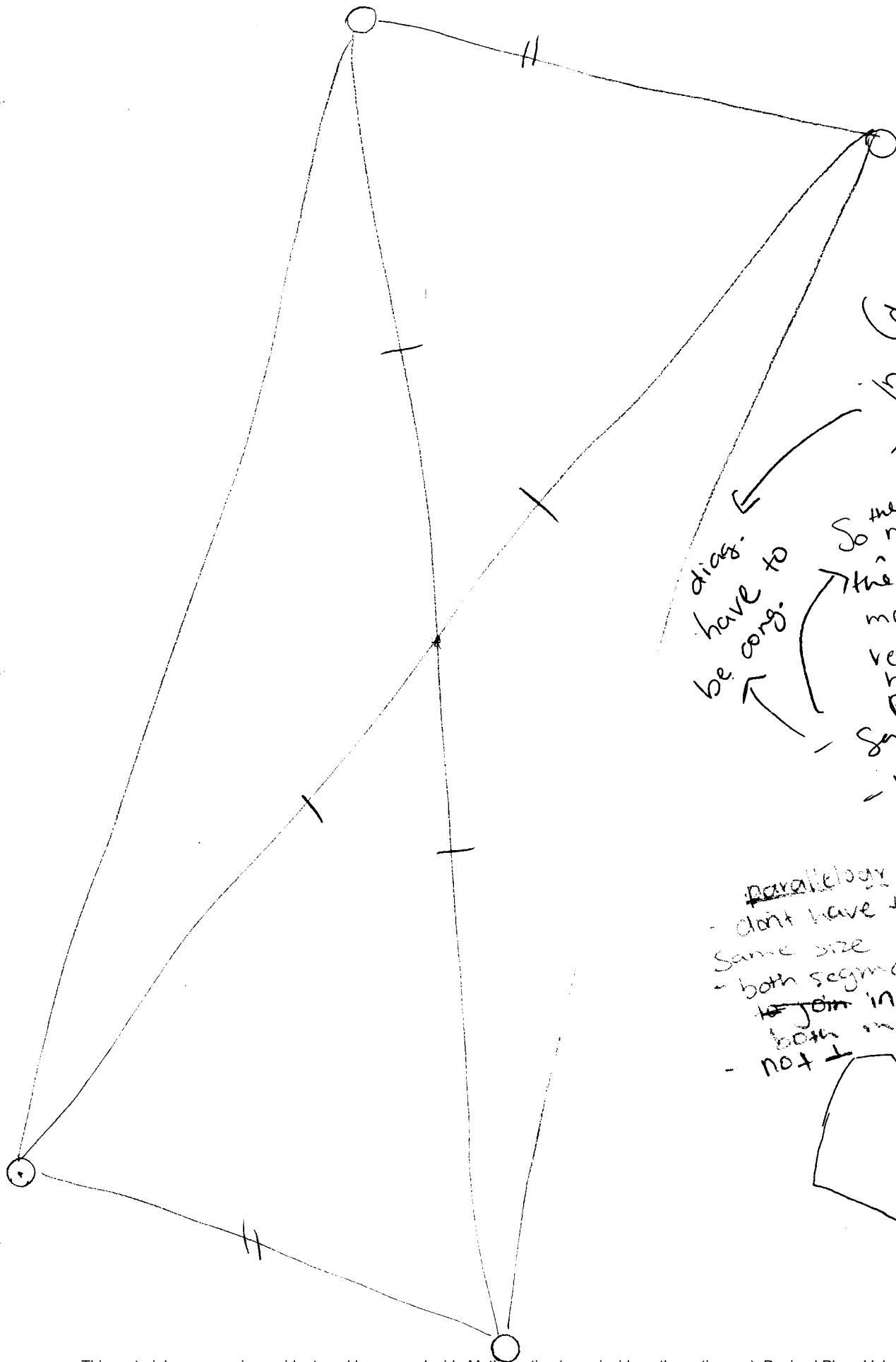
Where I think I could improve next time

I should be more organized and try to figure out more things. and write my name on my paper 😊

✓ to make a KITE
the diagonals have
to be perpendicular.

~~to make a square.~~
- only one diag. has to
be bisected by the other
diagonal.

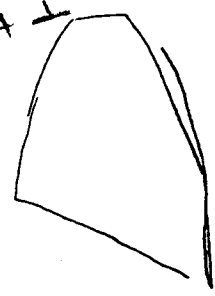


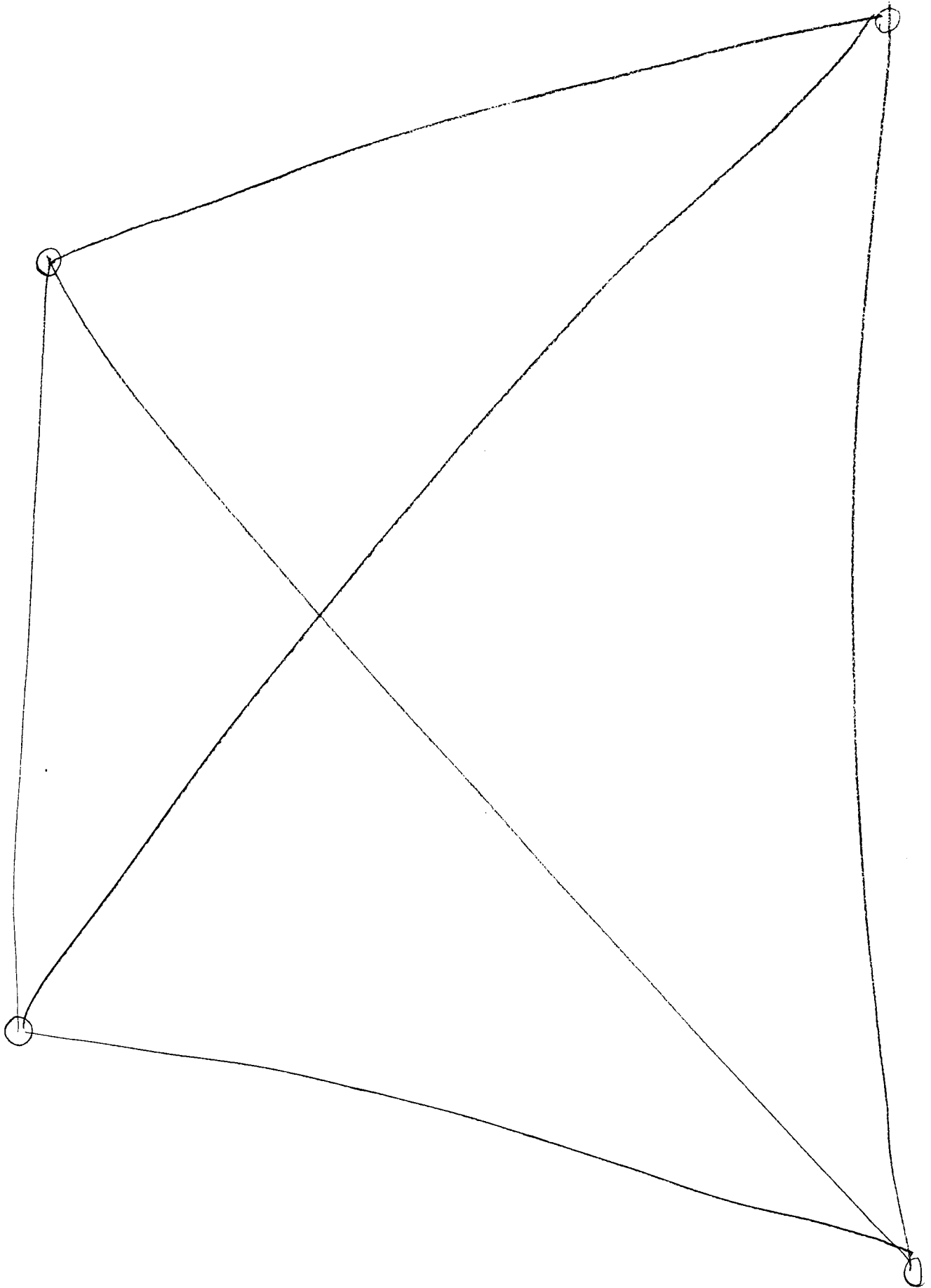


(don't have to be \perp)
 In a rect
 the diagonals
 are congruent

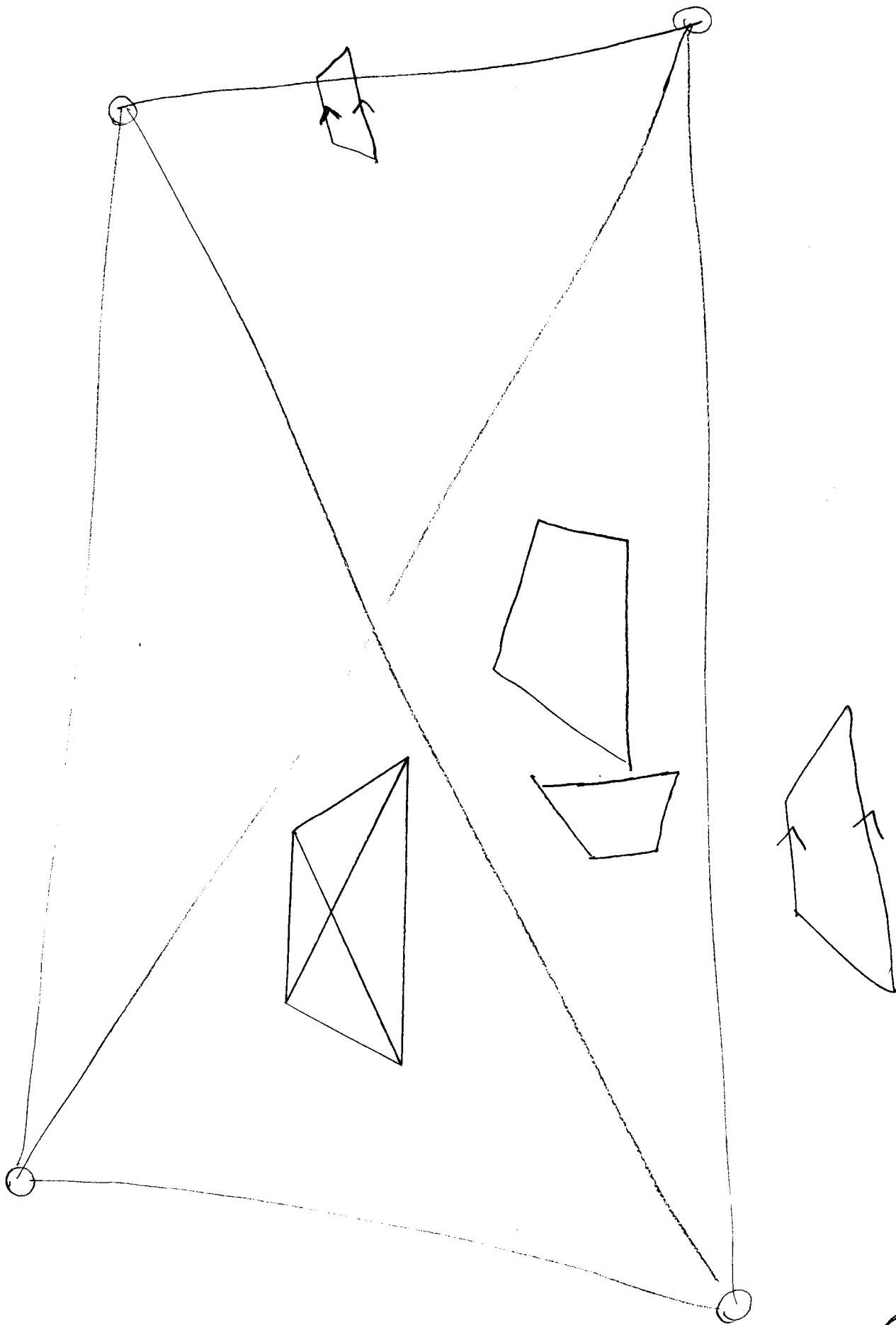
diag. \leftarrow
 have to
 be cong. \leftarrow
 So the midpoints of
 the diagonals
 meet. for a
 rectangle. &
 have to be
 perpendicular.
 Square
 - have to be
 90° (diag.)

parallelogram
 - don't have to be
 same size
 - both segments are
 to join intersect at
 both midpoints
 - not \perp

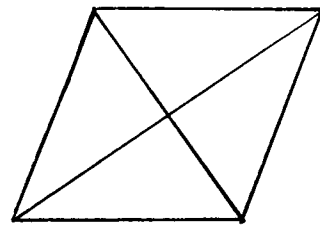
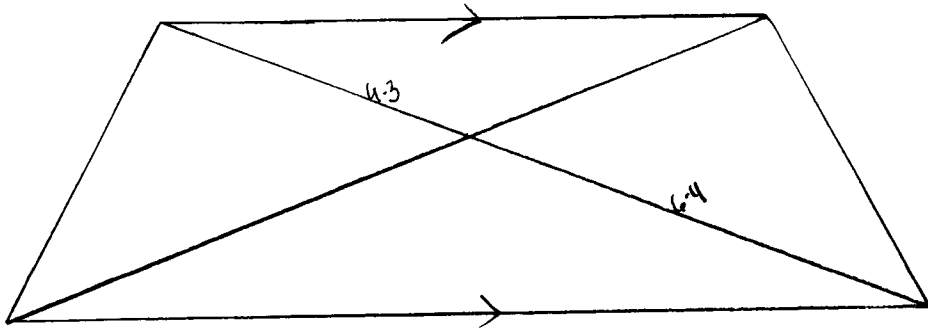




3

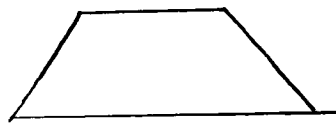


4



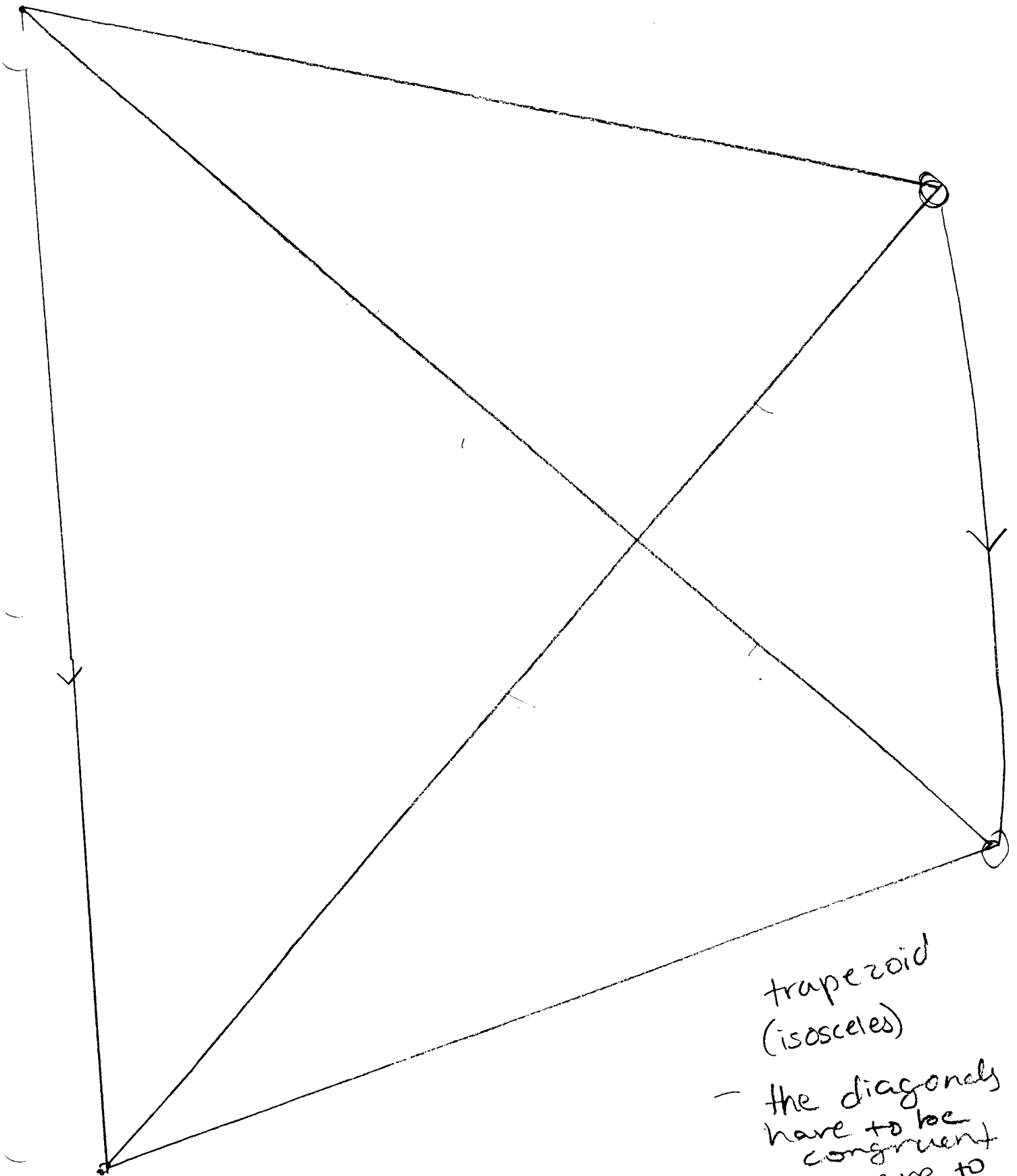
rhombus

for rhombus
the diagonals have
to be different sizes,
have to be \perp
have to meet at
midpoints.
✓



trapezium

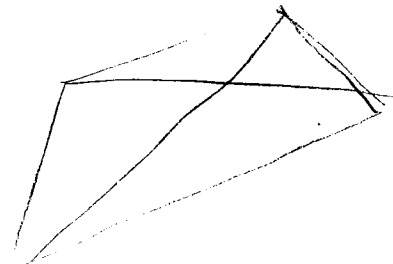
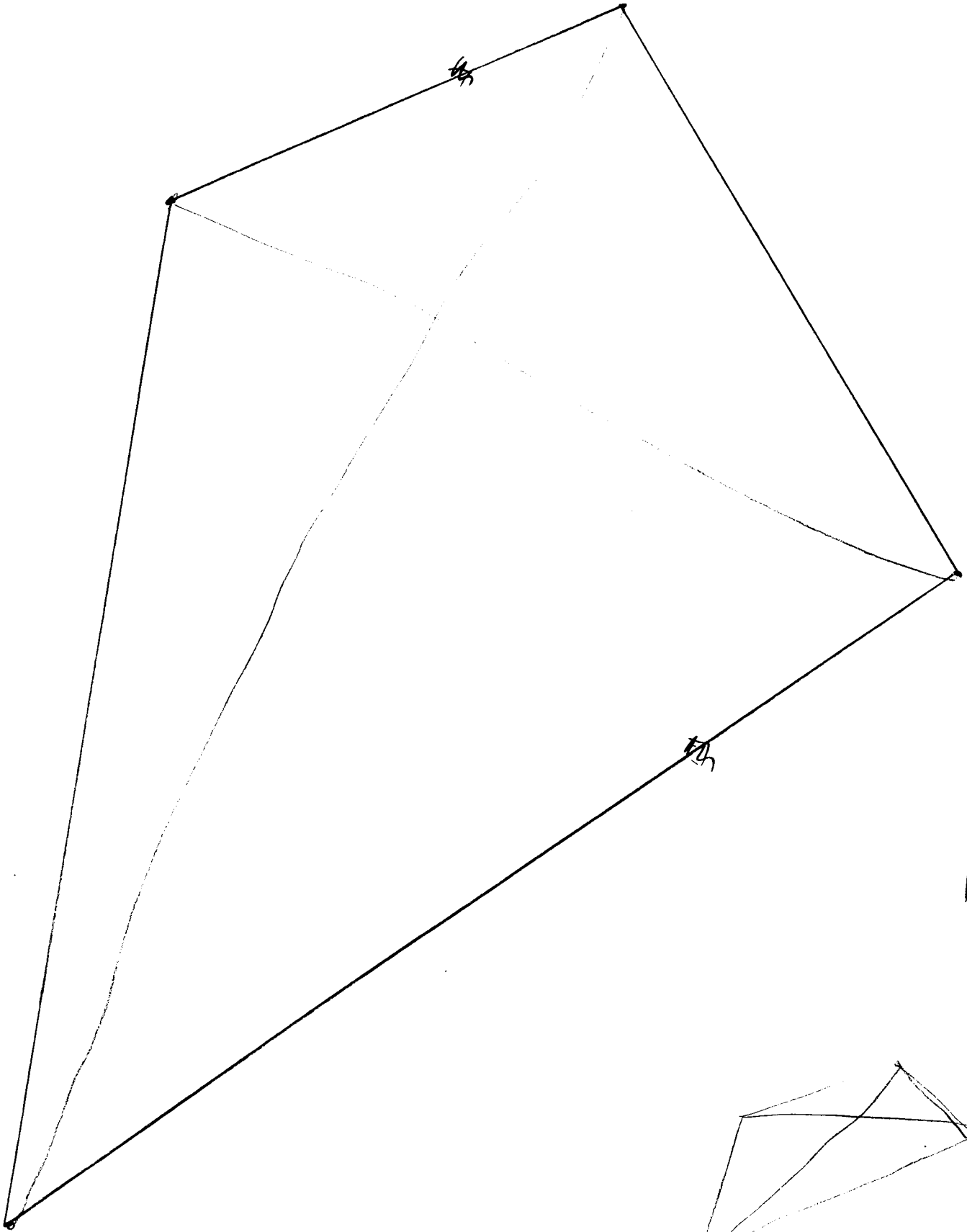
- diag. have to be different
- can be \perp
- ~~they~~ diagonals cannot bisect



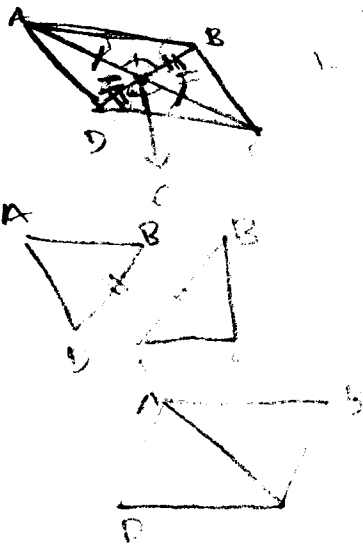
trapezoid
(isosceles)

- the diagonals have to be congruent
- they have to be \perp

forms 2 - form of pairs (6)



7



Statement

Reason

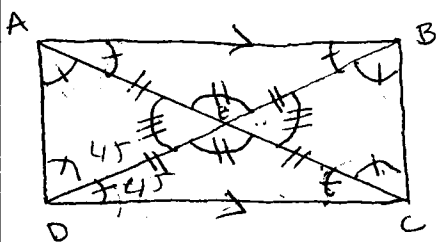
$\triangle AEB$ & $\triangle CED$ are congruent because of SAS.
 & $\triangle CEB \cong \triangle AED$ because of SAS. Now because of CPCTC the corresponding parts of the \triangle 's are congruent.

IF the diagonals bisect each other, and they are perpendicular, and the diagonals are different lengths,
 Then the quadrilateral is a rhombus.

Rhombus: A parallelogram in which ~~2 adjacent sides~~ all sides are congruent.

IF the diagonals are congruent, and the diagonals bisect each other, and ~~the diagonals are different lengths,~~
 then the quadrilateral is a rectangle

Rectangle : A parallelogram in which all the angles are $= 90^\circ$



$$\frac{360}{8} = 45$$

$$\frac{360}{8} = 45$$

Statement	Reason
1. $\triangle AEB \cong \triangle CED$	1. SAS
2. $\angle AEB \cong \angle CED$	2. SAS
2. $\triangle BEC \cong \triangle DEA$	2. SAS
3. $\angle BAE \cong \angle ECD$	3. CPCTC
4. $\angle ABE \cong \angle EDC$	4. CPCTC
5. $AB \parallel DC$	5. Alternate

131K:1, March 5, 2009.

What is the particular arrangement of the diagonals for a trapezoid?

Are there any other ways to arrange the diagonals for each shape (quadrilateral)?

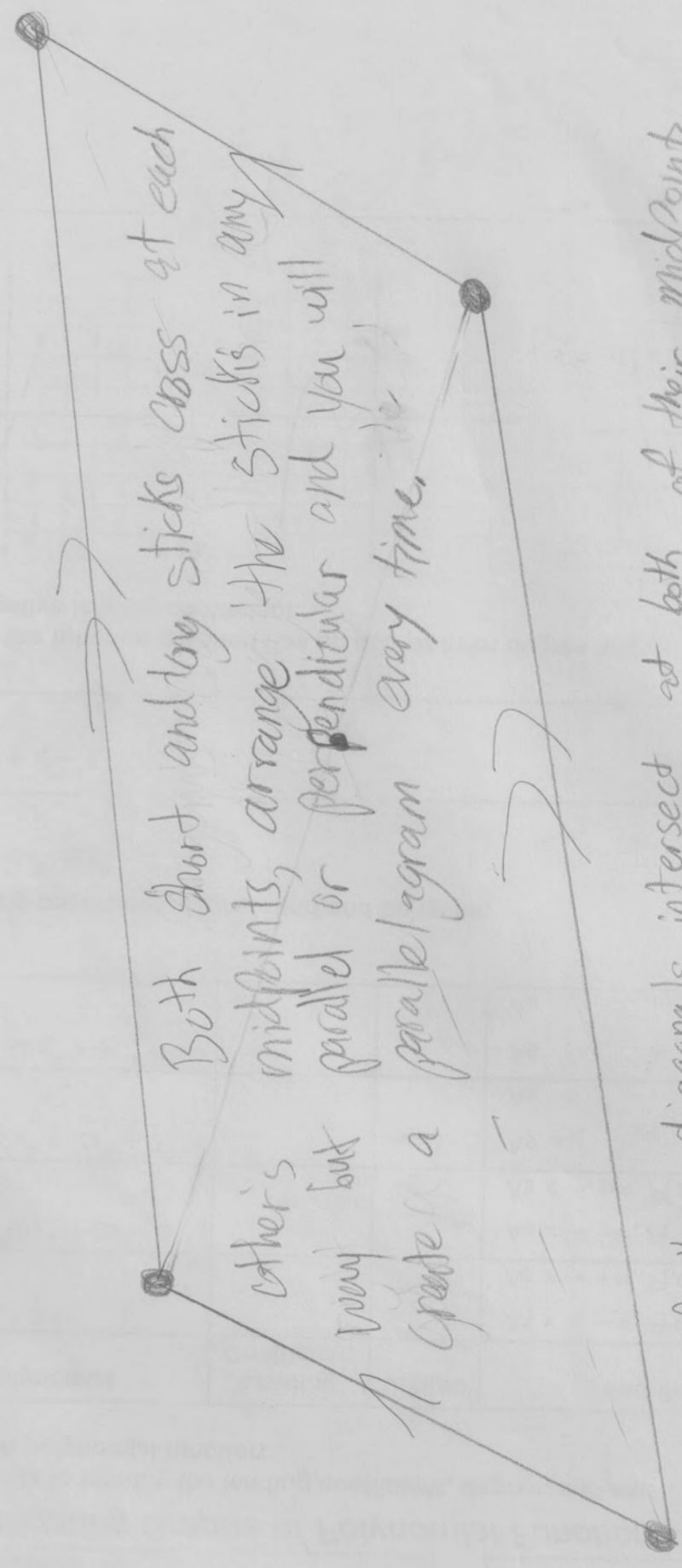
What I think I did well: I kept track of all my observations.

What I think I need to improve on: I need to improve on keeping my observations a little more organized.



Parallelogram

3/3/09



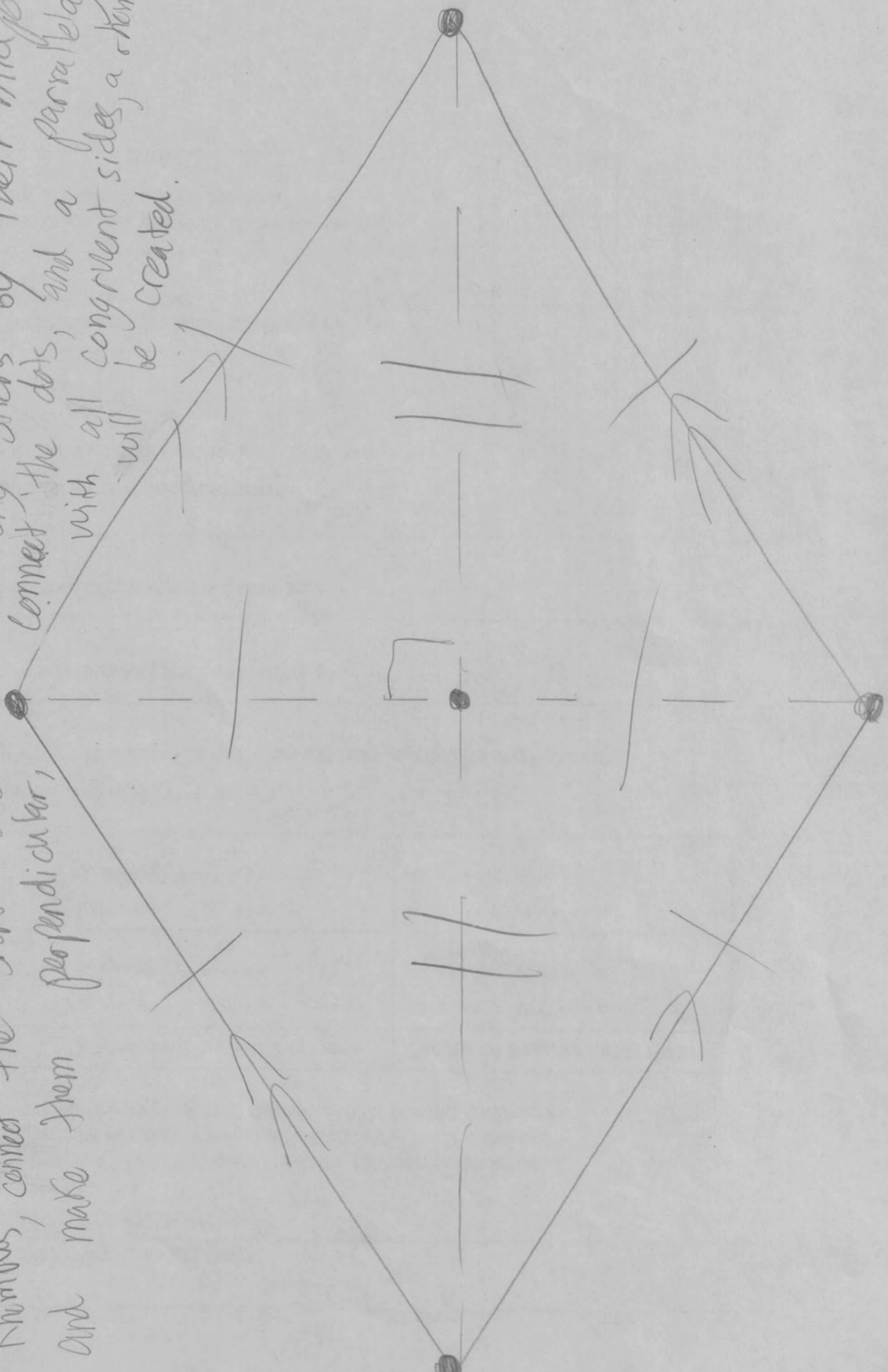
Both short and long sticks cross at each other's midpoints, arrange the sticks in any way but parallel or perpendicular and you will create a parallelogram every time.

If the diagonals intersect at both of their midpoints and the diagonals cannot be perpendicular and the diagonals are different lengths then the quadrilateral is a parallelogram.

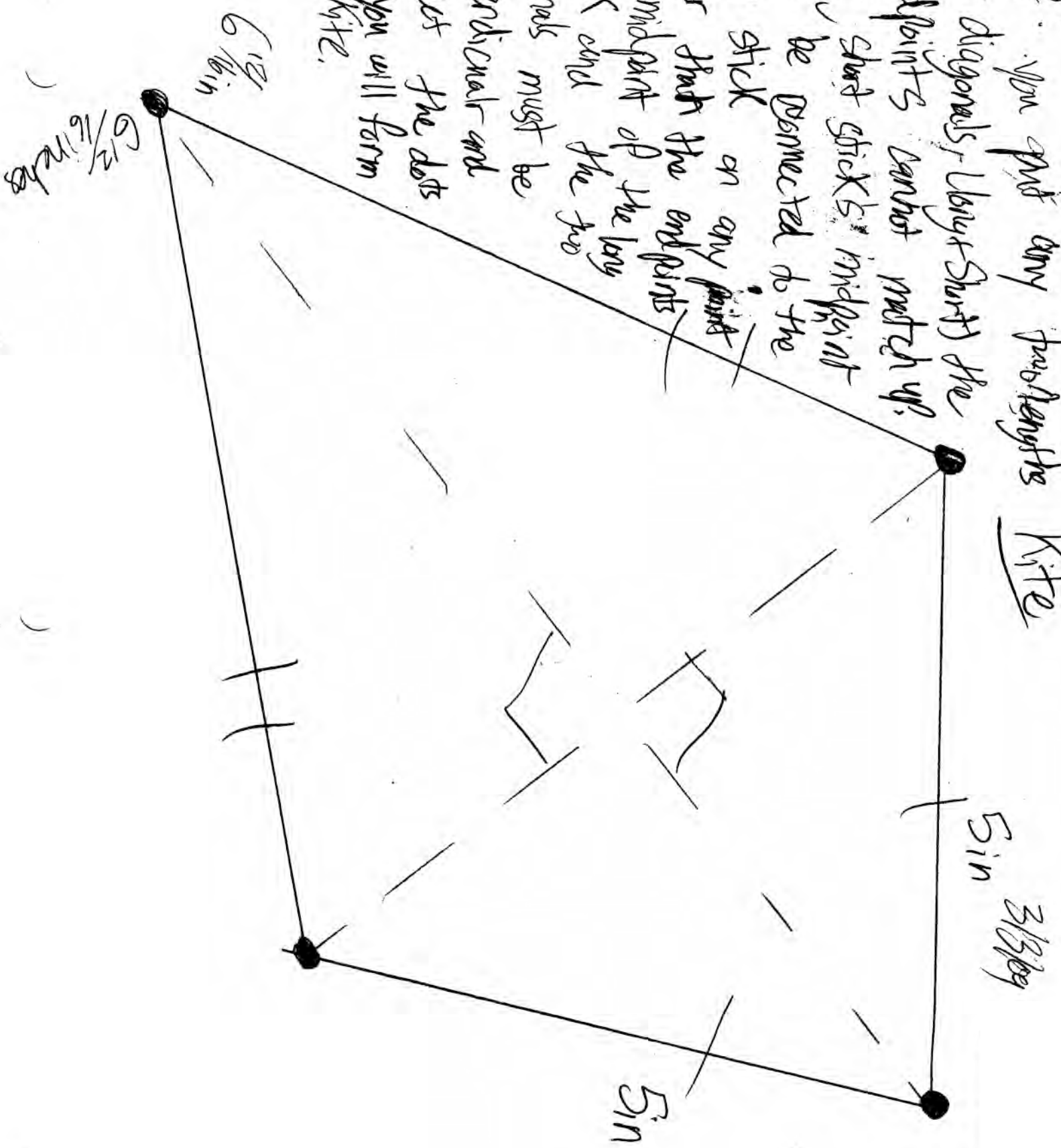
Rhombus

3/3/09
Over Hit

I know a rhombus is a parallelogram with all sides \cong . I will use that to try to find a pattern of creating a rhombus. To create a rhombus, connect the short stick and long sticks by their midpoints and make them perpendicular, connect the dots, and a parallelogram with all congruent sides, a rhombus, will be created.



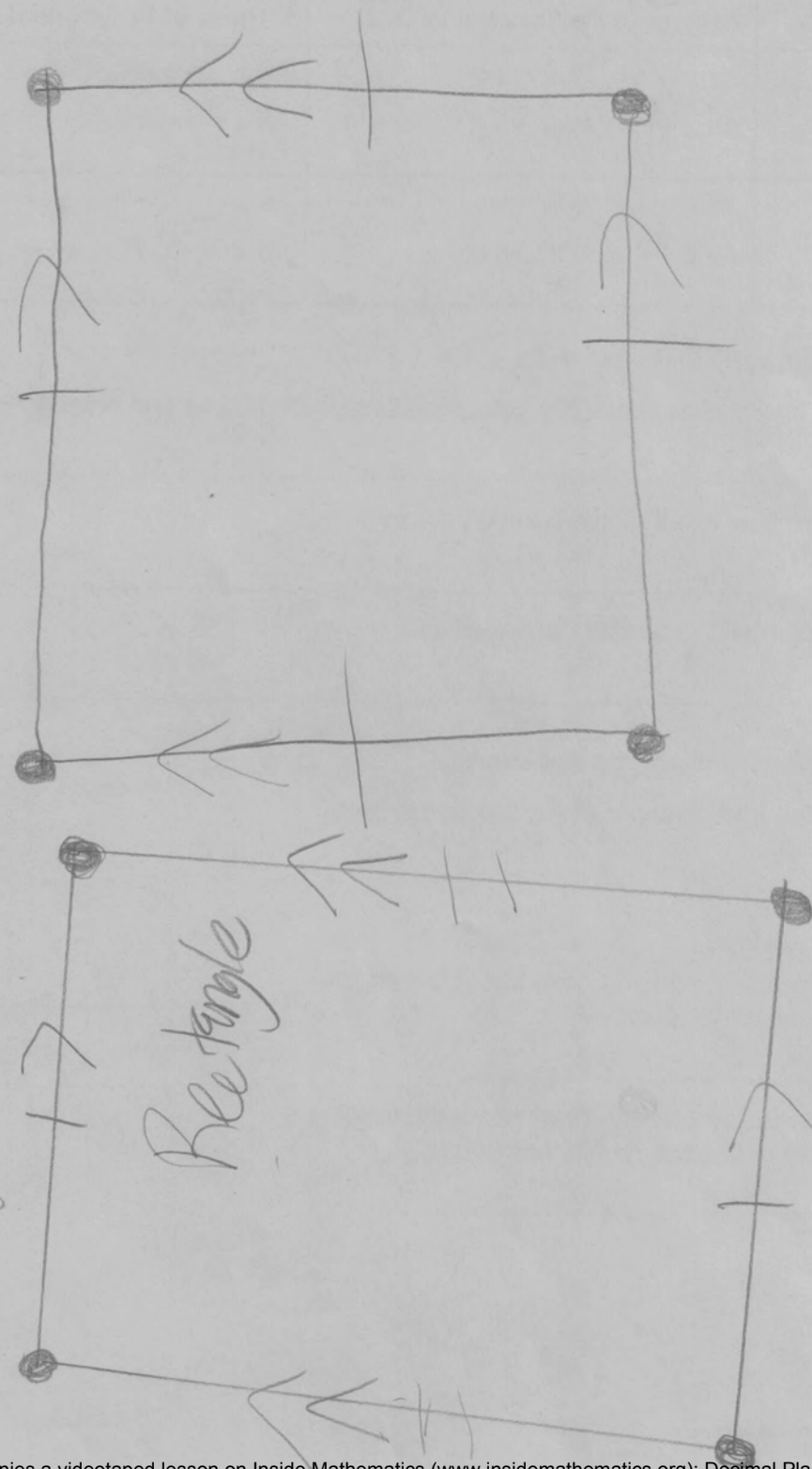
If you put any two lengths Kite & diagonals (long & short) the midpoints cannot match up. The short stick's midpoint will be connected to the long stick on any point other than the endpoints or midpoint of the long stick and the two diagonals must be perpendicular and correct the dots and you will form a kite.

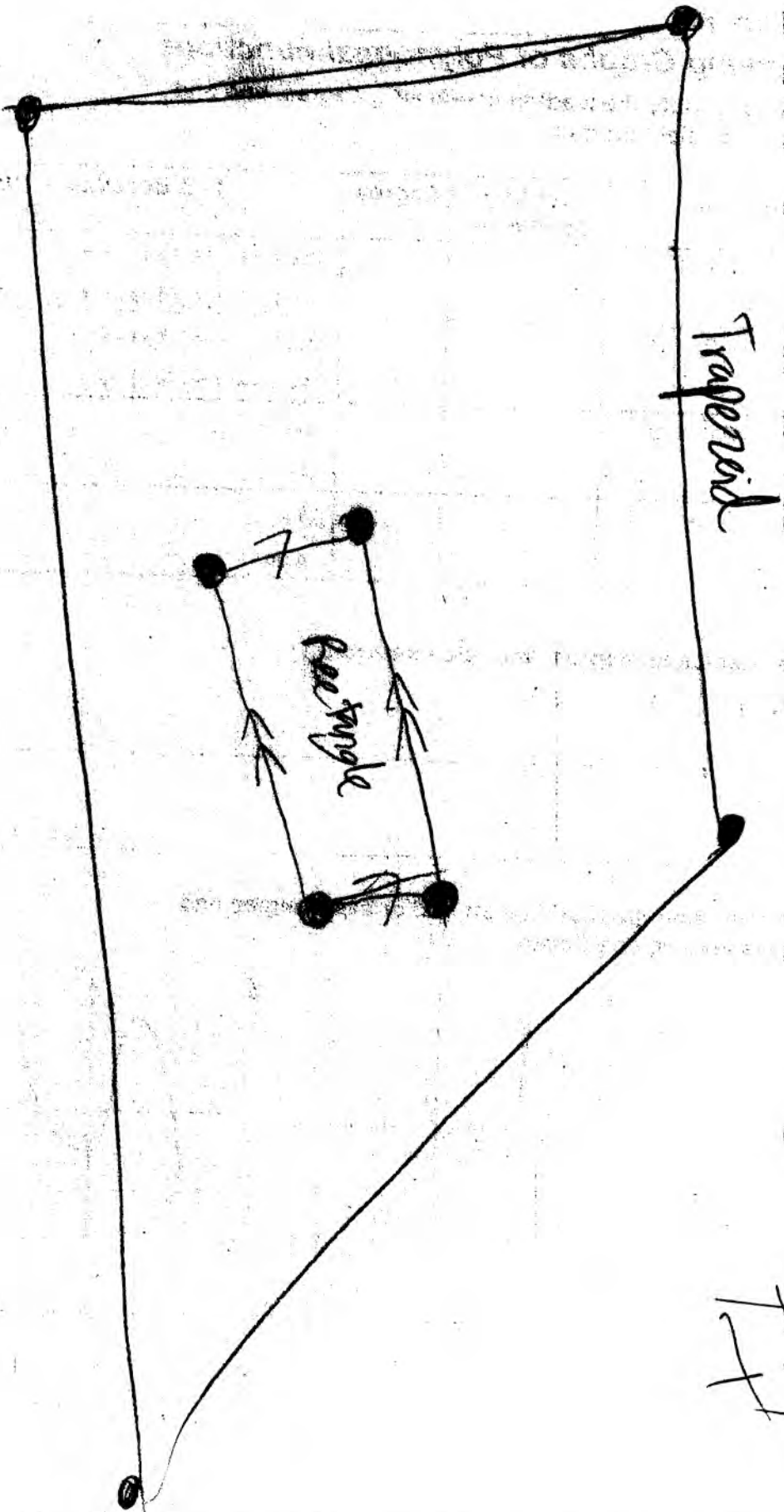


Square/Rectangle

3/3/09

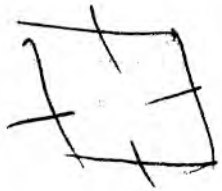
we noticed that if we put the pin in the midpoint of two congruent sticks and make them perpendicular, a square will be created and if the angles are not right angles, a rectangle will be created.

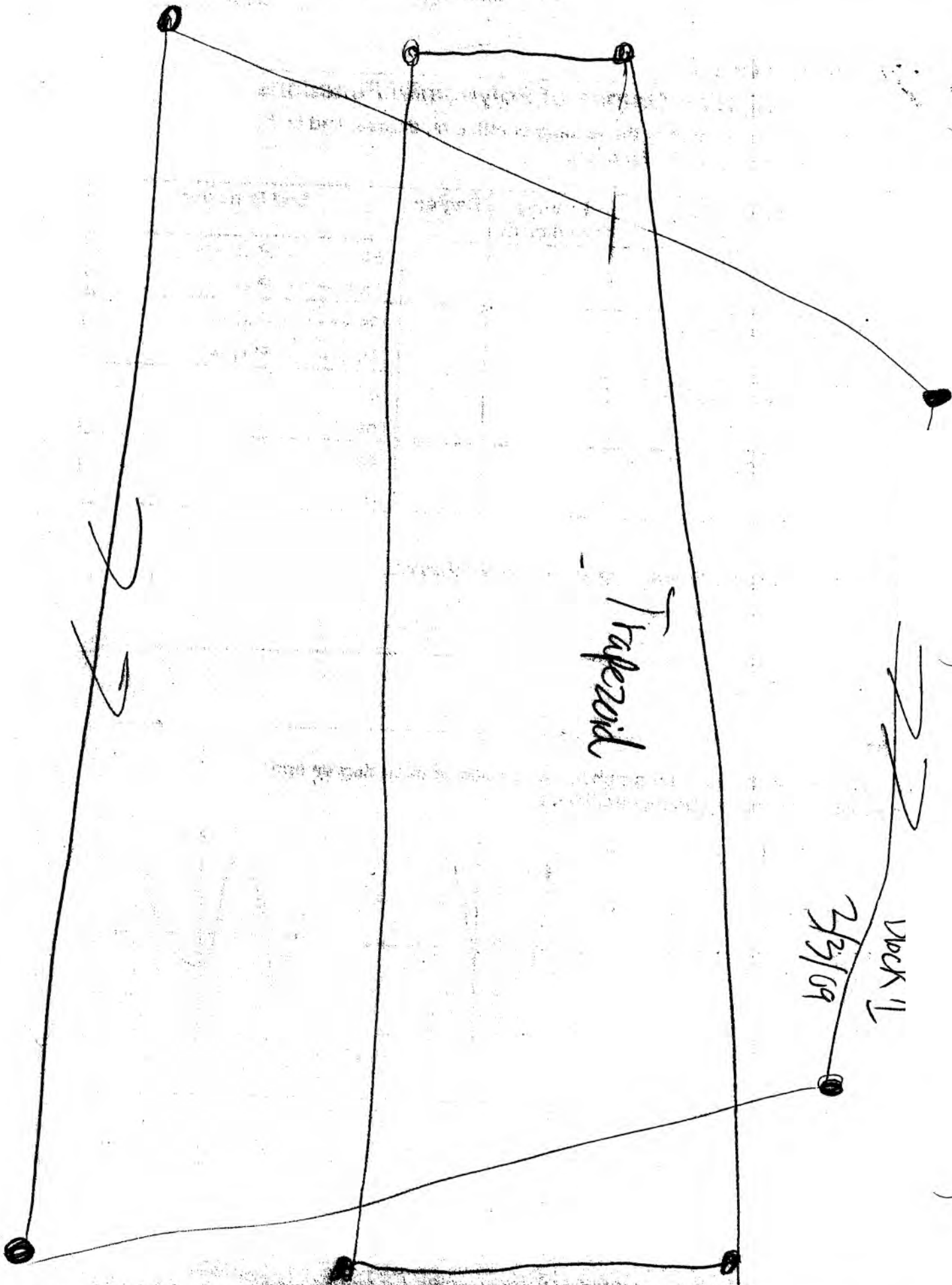


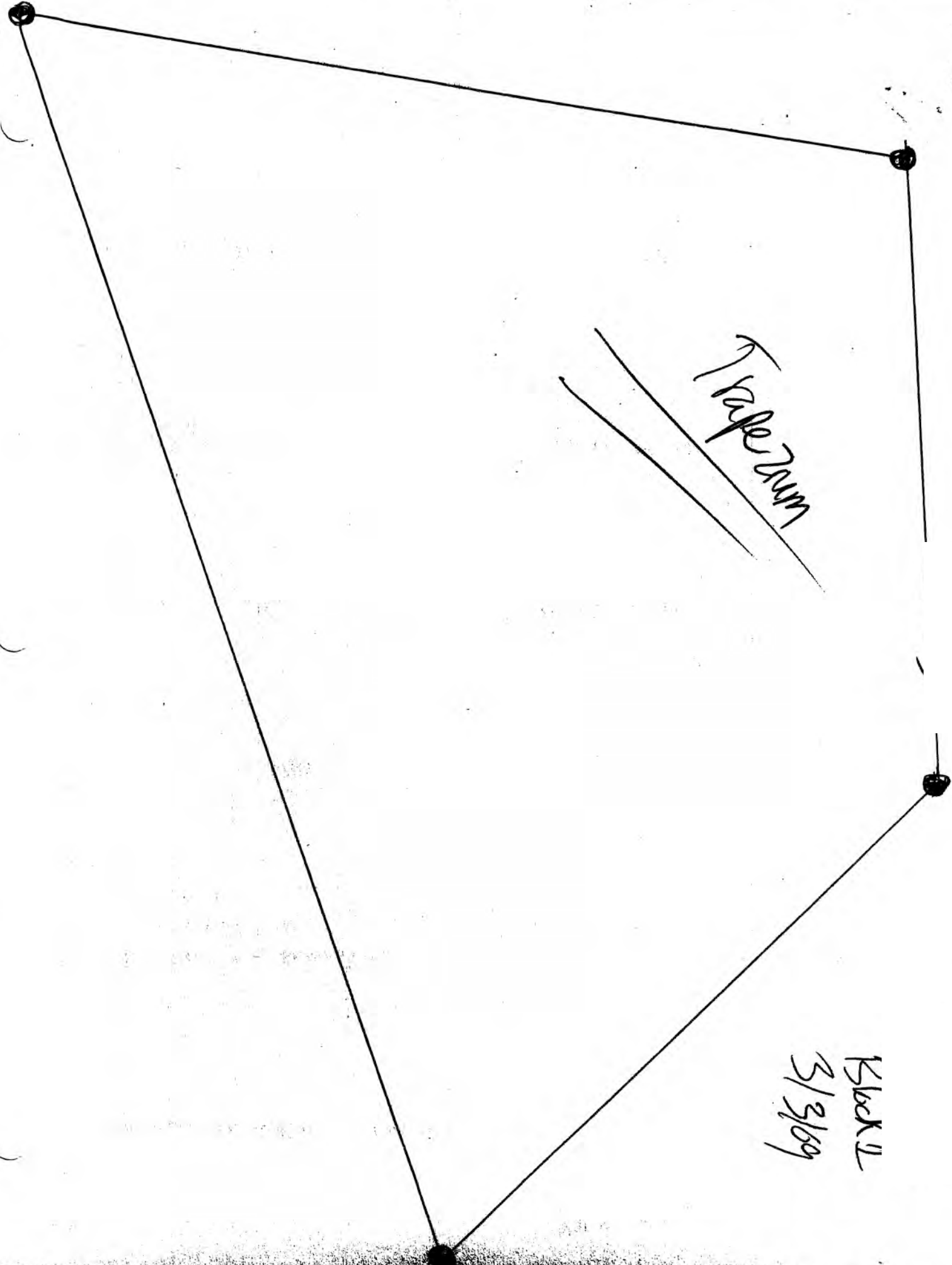


2/2/09

47





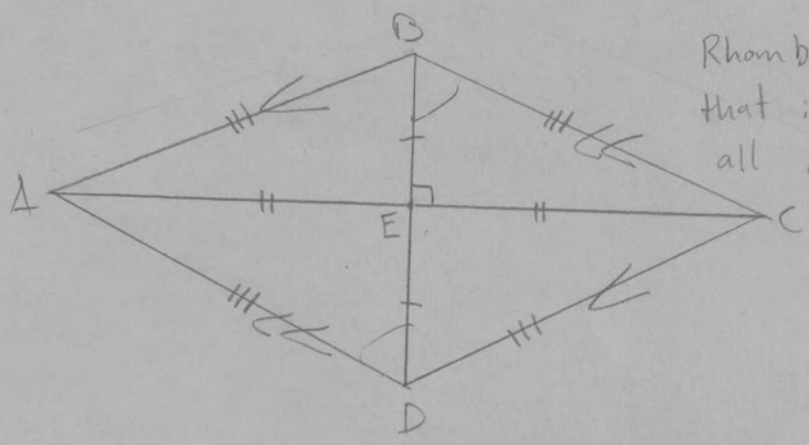


Trapezium

Block 11
3/3/09

Rhombus (generic) Group 7

If the diagonals are different lengths,
and they are perpendicular
and they bisect each other,
 then the quadrilateral is a rhombus.



Rhombus: a quadrilateral that is a parallelogram with all congruent sides.

- 1) $\overline{AC} \perp \overline{BD}$
- 2) $\overline{AE} \cong \overline{EC}$
- 3) $\overline{BE} \cong \overline{ED}$
- 4) $\triangle BEC \cong \triangle DEC$
- 5) $\overline{BC} \cong \overline{DC}$
- 6) $\triangle BEA \cong \triangle DEA$
- 7) $\overline{BA} \cong \overline{DA}$
- 8) $\triangle BEA \cong \triangle BEC$
- 9) $\overline{BA} \cong \overline{BC}$
- 10) $\overline{AB} \cong \overline{BC} \cong \overline{CD} \cong \overline{DA}$
- 11) $\overline{AD} \perp \overline{BC}$
- 12) $\overline{AB} \perp \overline{DC}$
- 13) ABCD is a rhombus

$\triangle AED \cong \triangle CED$
 transitive property \rightarrow

- 1) Given
- 2) Given
- 3) Given
- 4) SAS
- 5) CPCTC
- 6) SAS
- 7) CPCTC
- 8) SAS
- 9) CPCTC
- 10) All triangles are \cong & CPCTC
- 11) Alternate Interior Angles
- 12) Alternate Interior Angles
- 13) all sides congruent & 2 pairs of parallel sides

Block 1 3/3/09

Is there a way to arrange the
diagonals to create a non-isosceles
trapezoid or a right angled trapezoid?

I think I did very well in showing my observations and explaining my findings along the way. The only way I can improve next time is to have a paper containing all of my group's observations containing mines.
