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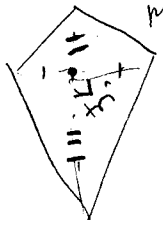
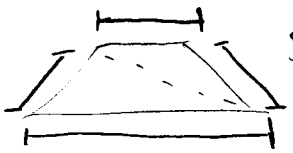
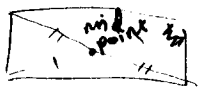
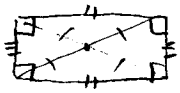
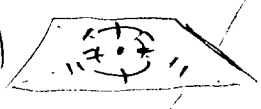
1)  make a polygon rigid?

iso. trap

2)  Sticks on sides?

3) 

4) 

5) 

6) trapezoid

rotated diagonals; one side always parallel; Any point will do

8) Sticks of diff lengths, intersect; one side of the intersection must be congruent

7) Rhombus:

Select center of one stick, place new stick on top (in center); despite diff in lengths of sticks the midpoint must create 2 con. segments out from intersection. sides will be parallel auto. Placed at right angles, sides ≅.

8) Parallelogram:

One short stick, one long stick, connect both @ center.

9) not con.

disproved

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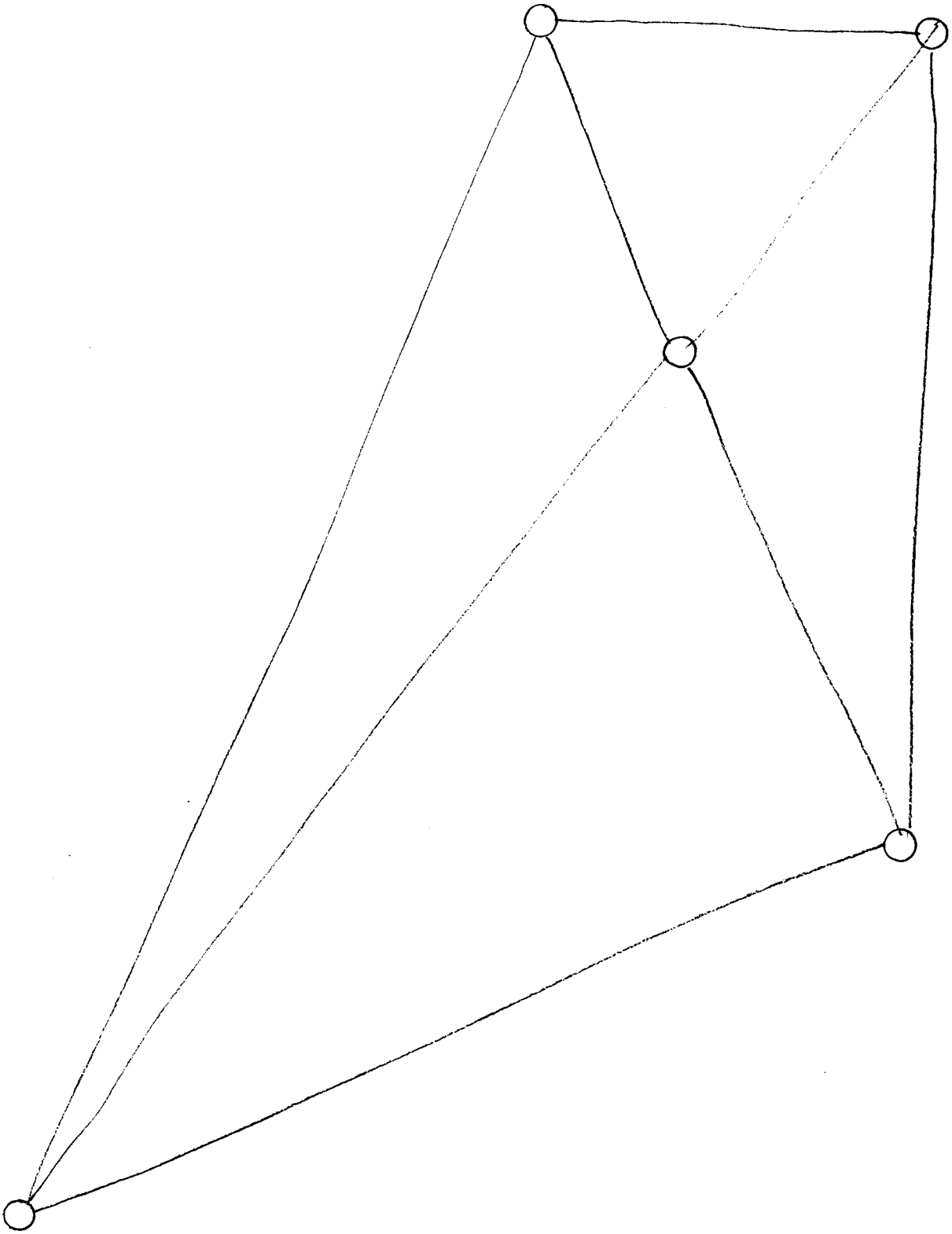
10)



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

Rhombus: A parallelogram in which all sides are equal.

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If: the diagonals bisect each other,
~~and the diagonals are not perpendicular,~~
and the lengths are the same,
then the quadrilateral is a rectangle.

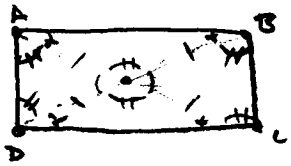
Rectangle: A parallelogram in which all ∠s equal 90°.

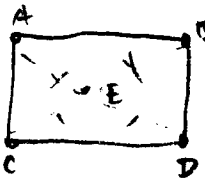
360° in quad

| | |
|---|---|
| 1) The diagonals $\overline{DB}$ and $\overline{AC}$ are the same length. | 1) Given. |
| 2) The diagonals' bisections are congruent ($\overline{AE}$, $\overline{DE}$, $\overline{BE}$, $\overline{CE}$) | 2) Division Property of Segments |
| 3) $\triangle AEB$, $\triangle AED$, $\triangle BAC$, $\triangle DAC$ are isosceles | 3) Their |

Prove 90°: The sum of a quadrilateral's angles = 360°
Addition of same angles = same angles
$360° \div 4 = 90°$

addition prop. of angles

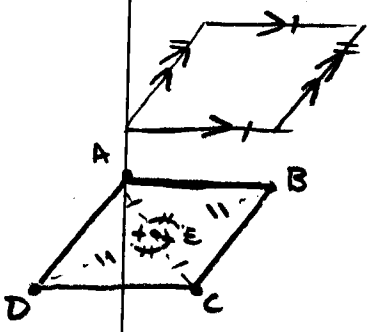


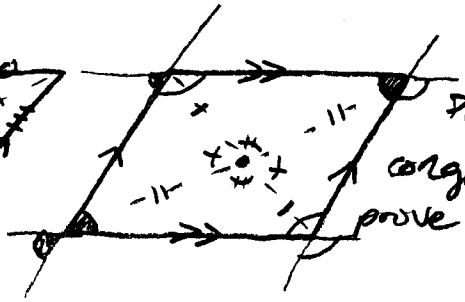



**Rectangle:**

1) $\overline{AD} \cong \overline{CB}$ 1) Given
2) $\overline{AE} \cong \overline{ED} \cong \overline{CE} \cong \overline{BE}$ 2) Division Property of Segments
3) $\angle AEB \cong \angle CED$ 3) Vertical angles are $\cong$.
4) $\angle AEC \cong \angle BED$ 4) ||
5) $\triangle AEB \cong \triangle CED$ 5)

Parallelogram:





Proving triangles congruent... won't prove the conjecture.

1)

1)

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How is it possible to place sticks so that they make rigid quadrilaterals and can be described as one special type or another?

What I think I did well: state my questions, conjectures and made diagrams as I went along.

What I think I need to improve on: Recording my first observations which lead to my conjectures.