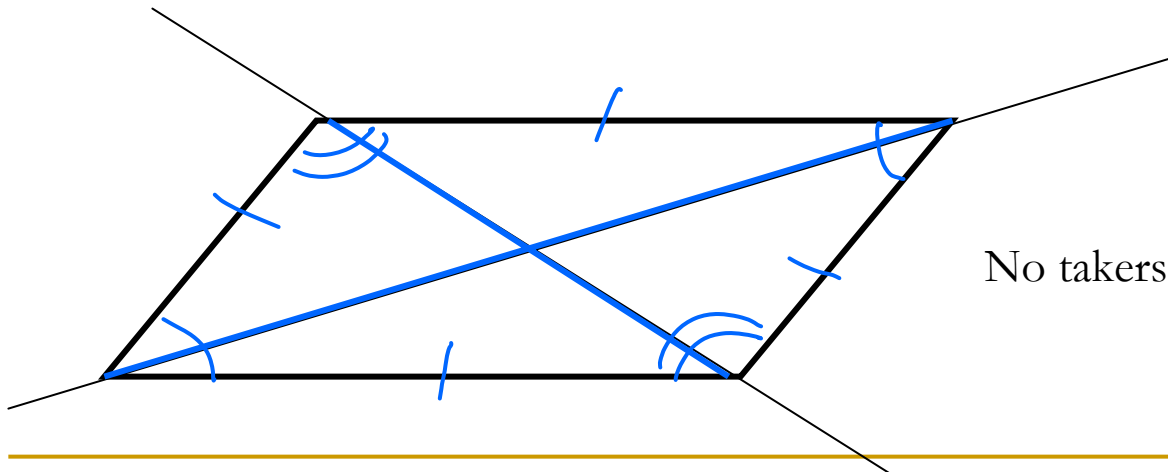

Conjectures

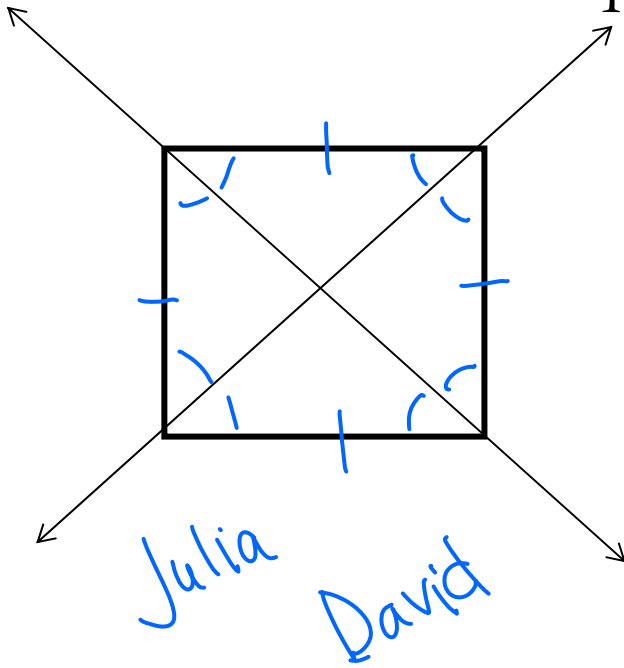
David, Sarah, Edgar, Laurence, Adam

- Given a convex quadrilateral $\square ABCD$, if the intersection of the angle bisectors emanating from any two opposite vertices is a segment, then those segments are diagonals and opposite angles are congruent.



Sarah, Julia, Jim, Robert, Alison

- If all sides of a convex quadrilateral are congruent the angle bisectors meet at a unique point in the interior of the quadrilateral.



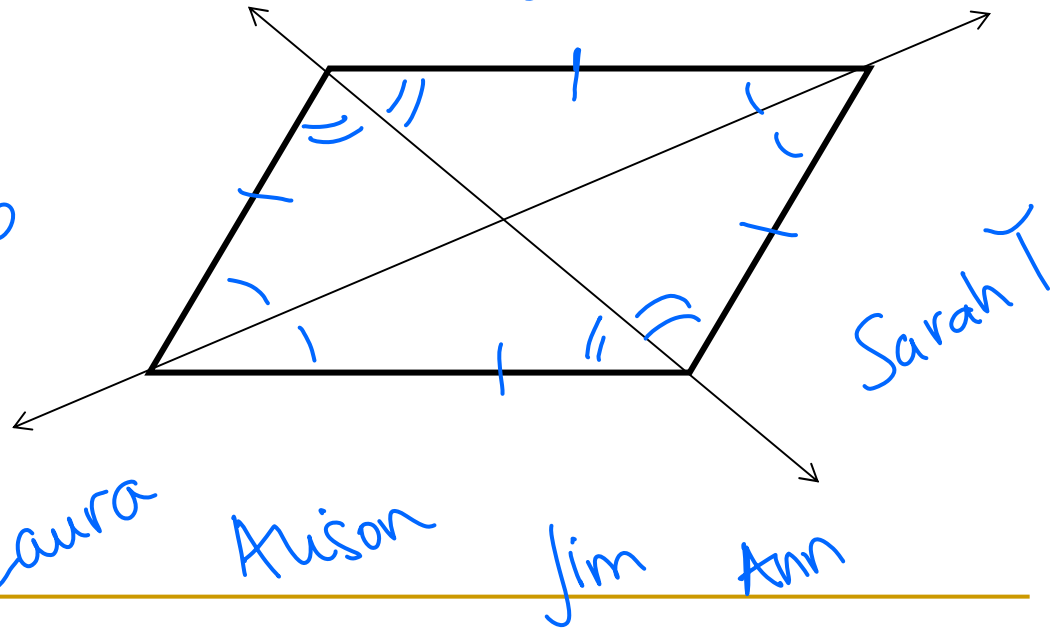
Rob

Laura

Alison

Jim

Ann



Ann, Ping, Matt, Laura

- The angle bisector of a convex quadrilateral intersects one side of a quadrilateral not containing the vertex it originated from. If it intersects both sides, then it contains its opposite vertex.

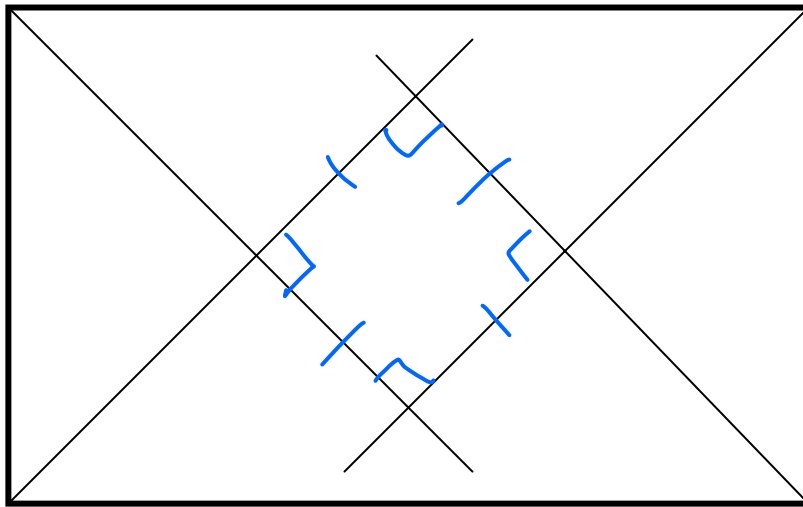
Laurence,

Amanda

Matt

Whitney, Sarah Y, Yolanda, Amanda, William

- If a rectangle is not a square, then the angle bisectors intersect to form a square.
- Rectangle - quadrilateral with four right angles and opposite sides congruent.
- Square – rectangle with all sides congruent



William
Yolanda
Whitney
Ping
Josh

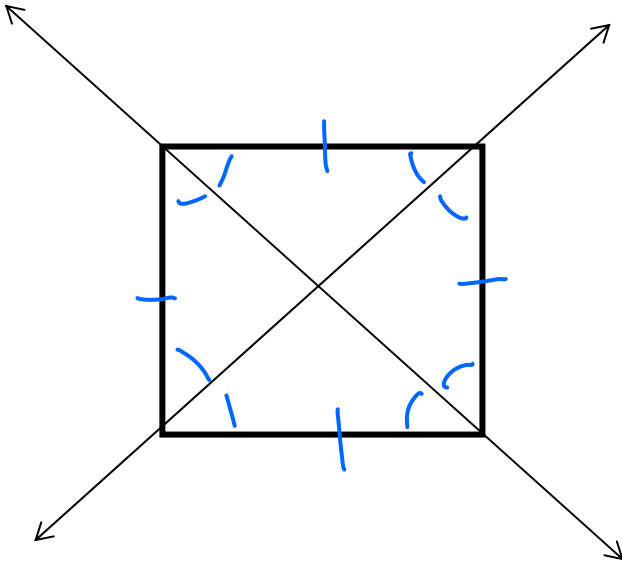
Rachel, Josh, Nikki, Sarah C, Sahar

- Given a convex quadrilateral, if the intersection of the angle bisectors of the angles formed by the opposite vertices are equal to the diagonals, then the quadrilateral is a square.
- A square is a quadrilateral with all four sides congruent and all four angles right angles.

Adam
Nikki Rachel
Edgar Sarah R.

Mike, Stephen, Sam, Jacob, Sarah

- Def: A parallelogram is a convex quadrilateral whose opposite sides are parallel.
- If the diagonals of a parallelogram $\square ABCD$ lie on the angle bisectors such that $BD \subset \text{bisector}(\angle ABC)$, $BD \subset \text{bisector}(\angle ADC)$, $AC \subset \text{bisector}(\angle DCB)$, $AC \subset \text{bisector}(\angle DAB)$, then all four sides DC , AB , BC and DA are congruent.



Lisa

Jenny Sarah

Rachel, David, Anthony

- A parallelogram is a quadrilateral where the opposite sides are parallel.
- In a parallelogram the lines defined by opposite angle bisectors are either equal or parallel.
- Intuition: many pictures.

Anthony David Rachel

TJ, Meg, Victor

- 1: If all four sides are congruent, the angle bisectors of opposite angles are collinear, the bisectors of adjacent angles intersect at a point and are perpendicular.

Erik Matt Eddy Stephen

- 2: If opposite sides are parallel, then the angle bisectors of adjacent angles are perpendicular.

Mike Vic Jacob

- 3: If all 4 sides are different lengths, you are screwed.

Kevin

there were lots of pics.

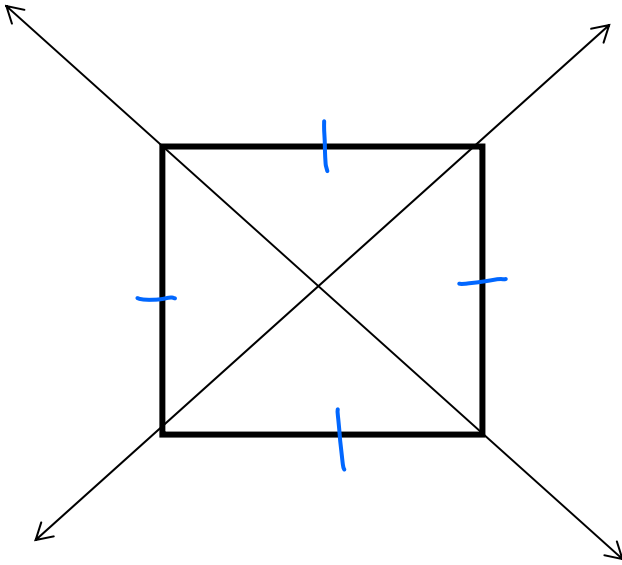
Kevin, Erik, Lisa, Jasmin

- Bisectors of adjacent angles always meet. Therefore, one angle bisector will intersect at least 2 other angle bisectors and sometimes all 3.

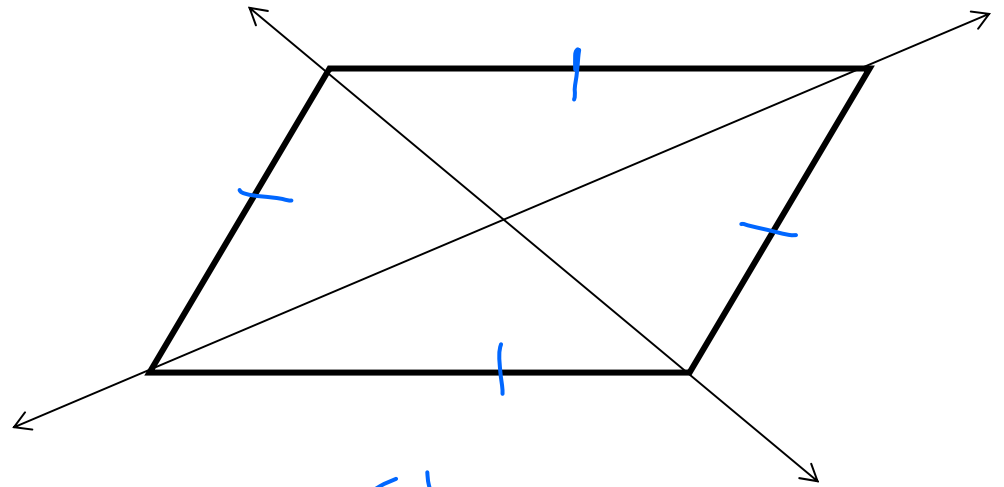
Kristen Jasmin

Jenny, Kristen, Eddy, Matt

- If all sides of a quadrilateral are congruent, then the intersection of all 4 angle bisectors is one point.



Meg



TJ

Sam