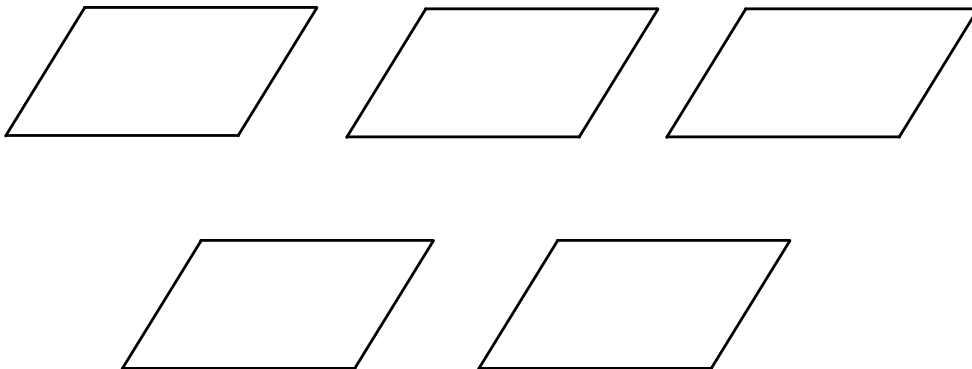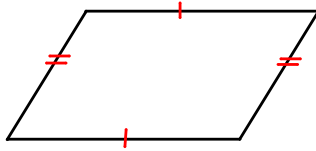3-4 Special Parallelograms

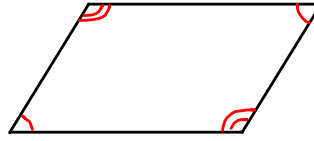Notes: Pages 501-502, 487-488

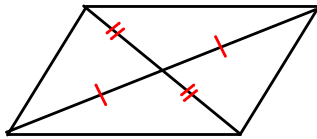What do we know about Parallelograms?
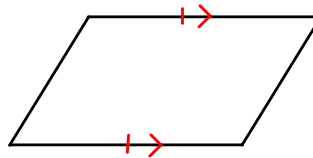
Also remember from last time:

If opposite sides
are congruent...

If opposite angles
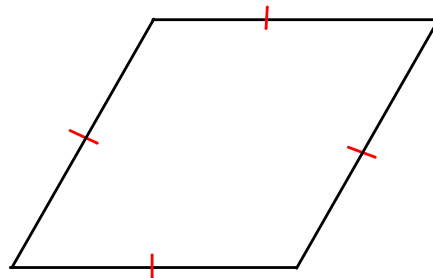are congruent...

If the angles
bisect each other...

If opposite sides are
congruent and parallel...

...then the quadrilateral is a parallelogram.

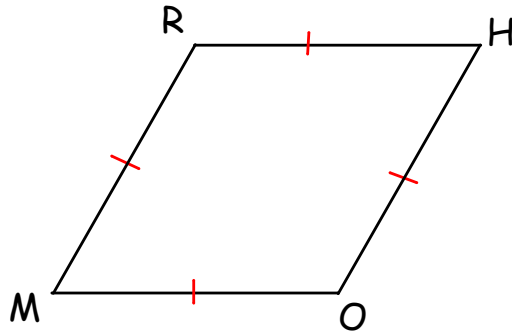These will make things easy today

Definition:

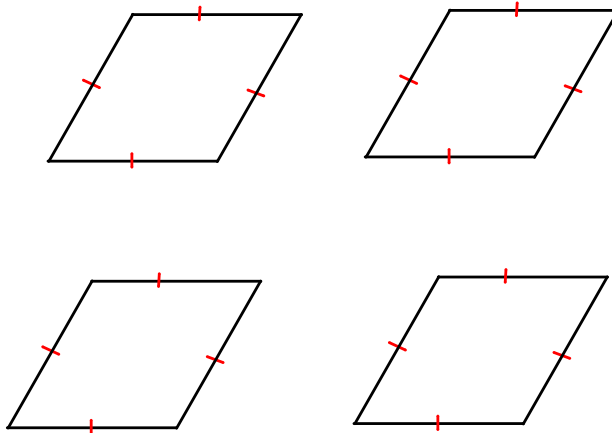Rhombus - a quadrilateral with all sides congruent.

Prove that rhombus RHOM is a parallelogram. (if you remember last time this should take one statement)
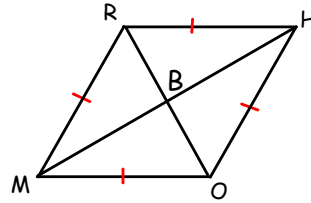
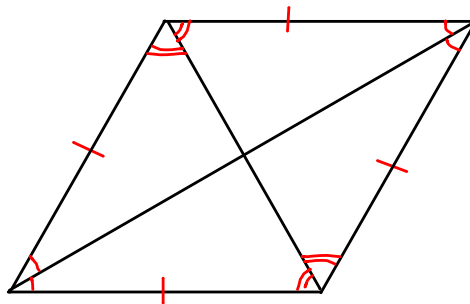Since a rhombus is a parallelogram, what properties hold true for all rhombi?

Prove that the diagonals of a rhombus are perpendicular.
(Hint: use △RBH and △RBM)

Given: RHOM is a rhombus with

diagonals meeting at B

Prove: $\overline{RO} \perp \overline{HM}$

We also can prove that the diagonals of a rhombus bisect
the vertex angles. You will prove this one in your homework.

Definition:

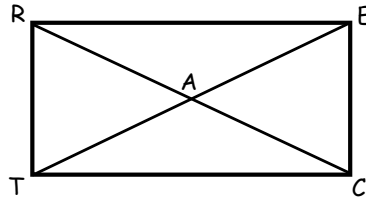Rectangle - A quadrilateral with all angles congruent.

Prove that rhombus RECT is a parallelogram.

Group work

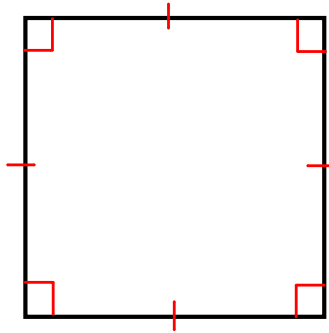Given: Rectangle RECT with diagonals $\overline{RC}$ and $\overline{ET}$ intersecting at point A

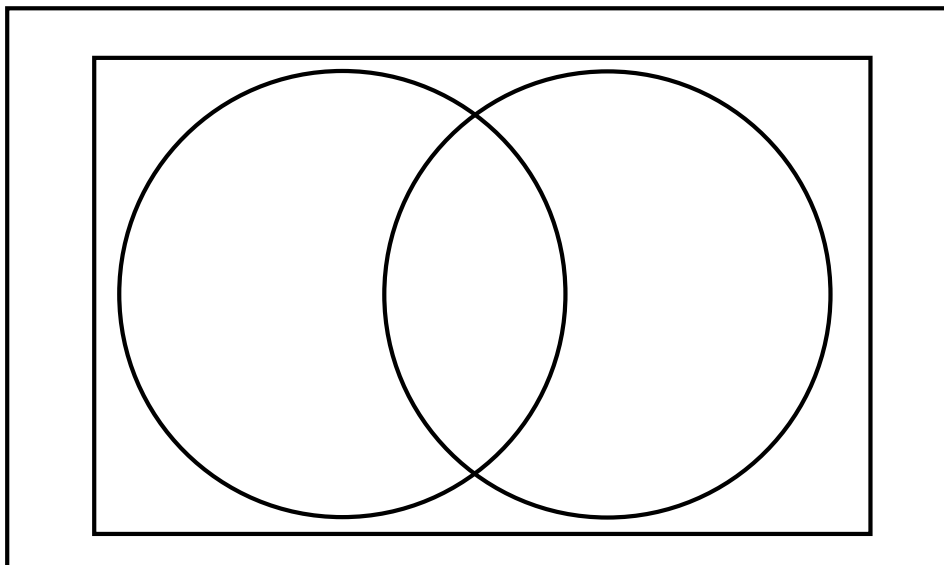Do you have enough information to conclude the diagonals of a rectangle are congruent? Explain your reasoning.

Definition:

Square - A quadrilateral with all four sides and all for angles congruent.
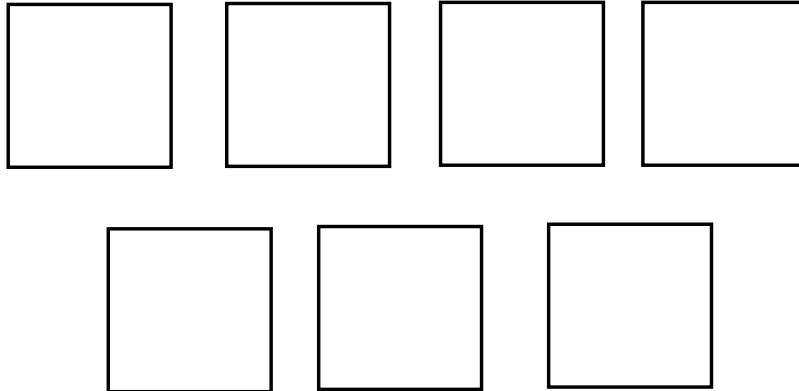
Venn Diagram: Put all the quadrilaterals we learned so far in the appropriate place in the venn diagram
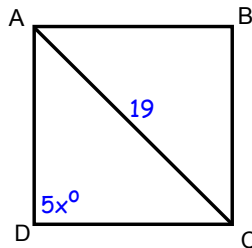
Quadrilaterals   Parallelograms   Rectangles   Squares   Rhombi

Now that we know that a square is a parallelogram, a rhombus, and a rectangle, what properties does a square have?

ABCD is a square solve for x

A _____ B

19

$5x^o$

D ____ C

FGHI is a Rectangle. Solve for x.

$$FH = 8x - 13$$

$$GT = 7x + 11$$

F ────────────── I

G ────────────── H