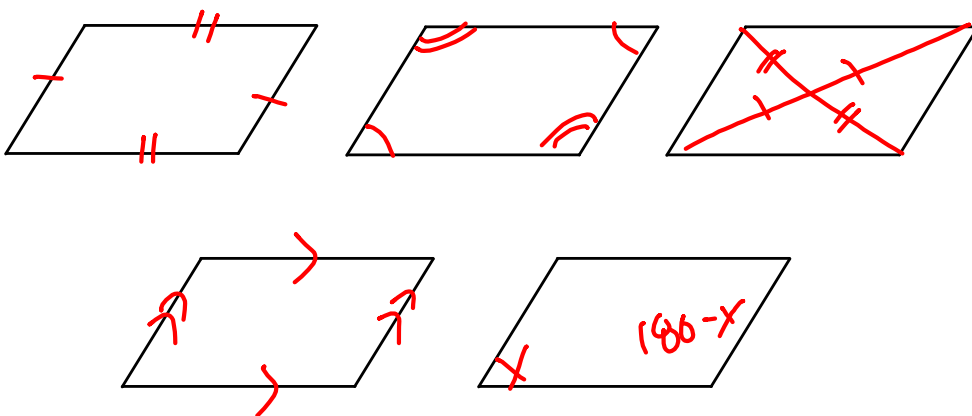


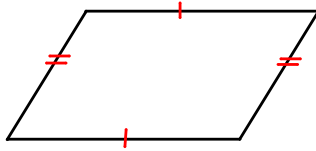
3-4 Special Parallelograms

Notes: Pages 501-502, 487-488

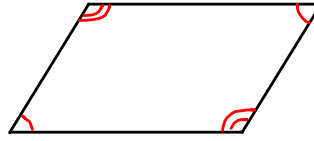
What do we know about Parallelograms?



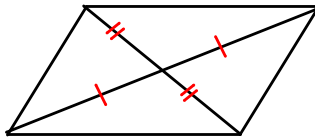
Also remember from last time:



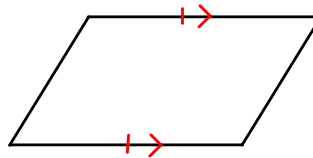
If opposite sides are congruent...



If opposite angles are congruent...



If the angles bisect each other...



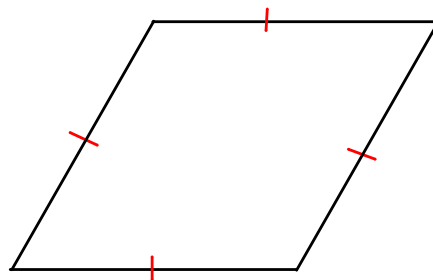
If opposite sides are congruent and parallel...

...then the quadrilateral is a parallelogram.

These will make things easy today

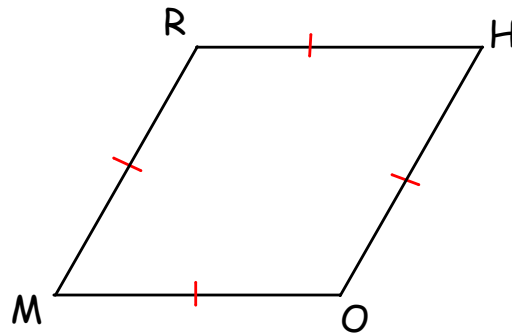
Definition:

Rhombus - a quadrilateral with all sides congruent.



P. 501 Q. 3

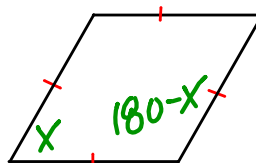
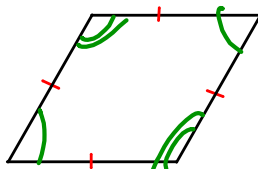
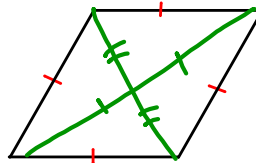
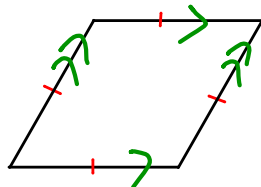
Prove that rhombus RHOM is a parallelogram. (if you remember last time this should take one statement)



Because opposite sides are \cong ,
RHOM is a //gram.

P. 501 Q. 4

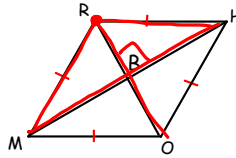
Since a rhombus is a parallelogram, what properties hold true for all rhombi?



P. 502 Q. 5

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

Given: $RHOM$ is a rhombus with
 diagonals meeting at B
 Prove: $\overline{RO} \perp \overline{HM}$

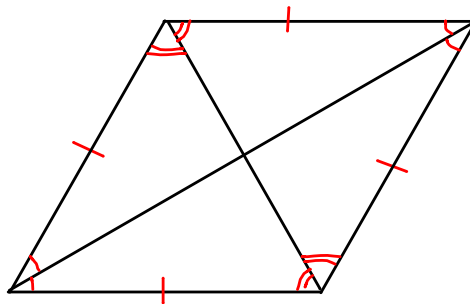


if point on \perp bisector
 then equidistant from endpoints.

if point equidistant from endpoints
 then point is on \perp bisector.

Statement	Reason
$\overline{RH} \cong \overline{HO}$	given
$\overline{RO} \perp \overline{HM}$	\perp bisector converse

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.

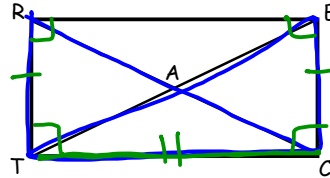


Because opposite \angle 's \cong ,
it is a //gram.

Group work

P. 487-488 Q. 4,7

Given: Rectangle RECT with diagonals RC and ET intersecting at point A



Do you have enough information to conclude the diagonals of a

Statement	Reason
$\overline{RT} \cong \overline{EC}$	// gram
$\angle RTC \cong \angle ECT$	Rectangle
$\overline{TC} \cong \overline{TC}$	reflexive
$\triangle RCT \cong \triangle ECT$	SAS
$\overline{AC} \cong \overline{ET}$	CPCTC.

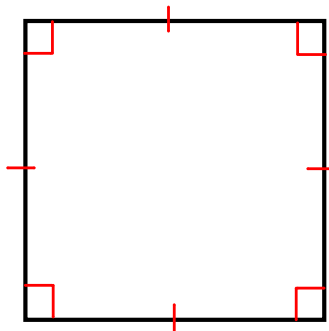
SAS

CPCTC

Definition:

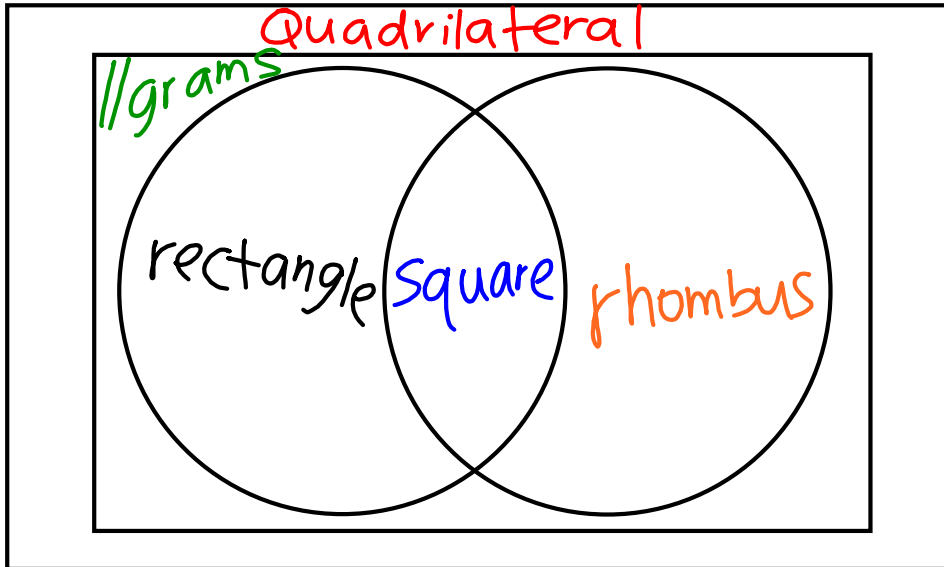
Square - A quadrilateral with all four sides and all ~~four~~ ^{four} angles congruent.

Rhombus
Rectangle

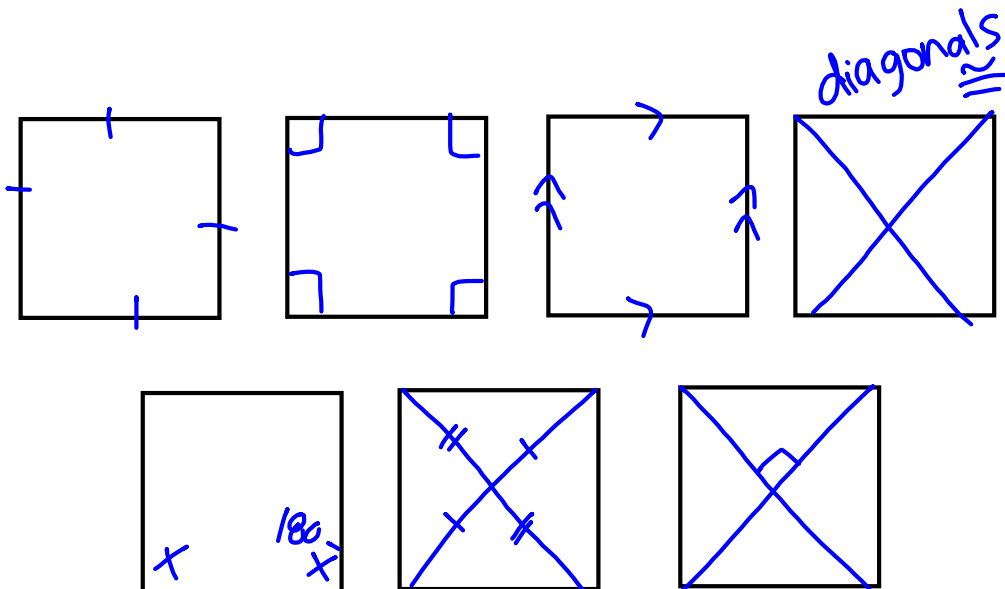


Venn Diagram: Put all the quadrilaterals we learned so far in the appropriate place in the venn diagram

Quadrilaterals Parallelograms Rectangles Squares Rhombi



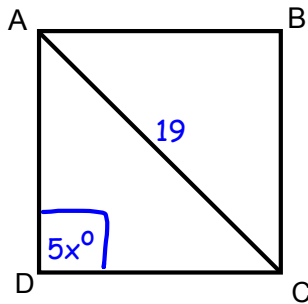
Now that we know that a square is a parallelogram, a rhombus, and a rectangle, what properties does a square have?



ABCD is a square solve for x

$$\frac{90}{5} = \frac{x}{5}$$

$$18 = x$$



FGHI is a Rectangle. Solve for x.

$$FH = 8x - 13$$

$$GI = 7x + 11$$

$$\begin{aligned} 8x - 13 &= 7x + 11 \\ -7x + 13 & \quad -7x + 13 \end{aligned}$$

$$\boxed{x = 24}$$

