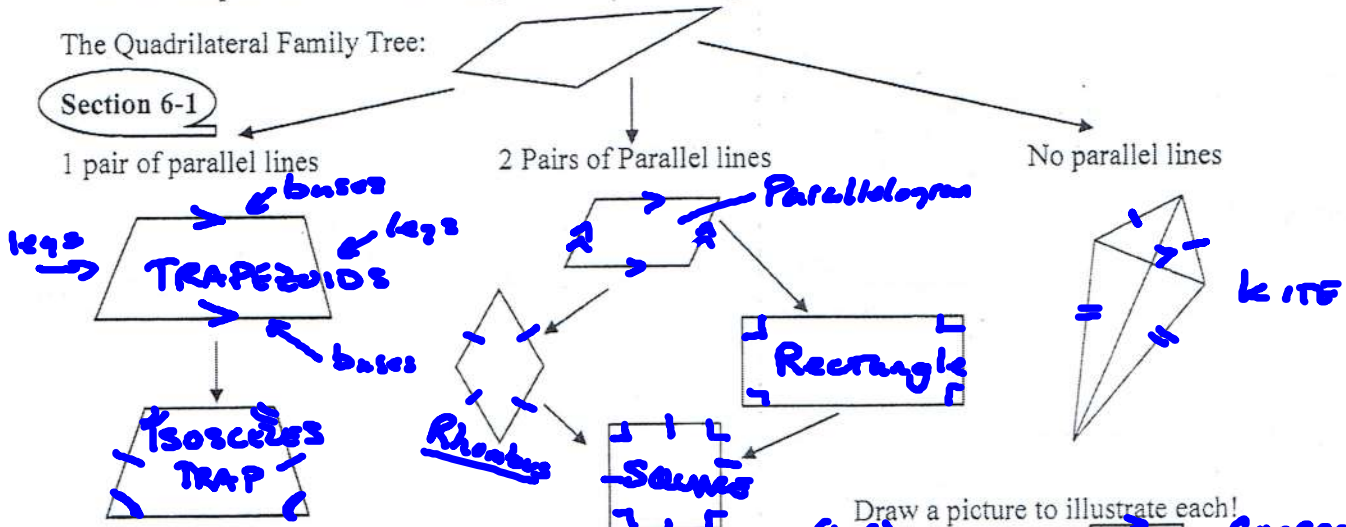


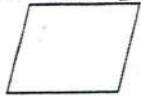
You are responsible for knowing all the following:

The Quadrilateral Family Tree:



Section 6-2

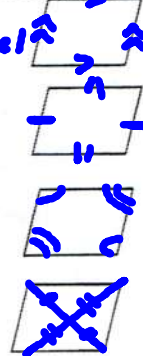
If Parallelogram



base \angle 's

1. opposite sides are parallel
2. opposite sides are \cong
3. opposite \angle 's are \cong
4. diagonals bisect each other

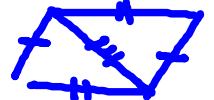
Draw a picture to illustrate each!



Consecutive \angle 's add TO 180



A diagonal creates 2 \cong Δ 's

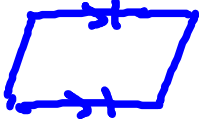
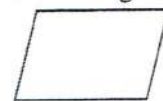


Section 6-3, the Converses of section 6-2

1. if opp. sides are parallel
2. if opp sides are \cong
3. if opp \angle 's are \cong
4. if diagonals bisect each other
5. if one pair of sides are parallel and congruent

Then
Then
Then
then
then

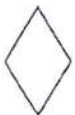
Parallelogram



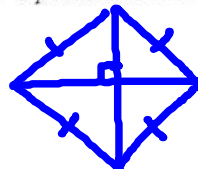
Section 6-4 on Rhombus

Draw a picture to illustrate each!

If Rhombus



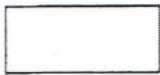
1. diagonals are \perp
2. diagonal bisect the opposite angles



Plus \rightarrow everything a parallelogram has

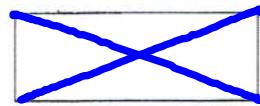
A **SQUARE** has all the properties of a parallelogram, a rhombus and a rectangle

If Rectangle



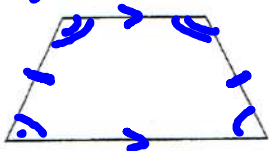
1. Diagonals are \cong

Plus, everything a Parallelogram has



Section 6-5

If a quad is an isosceles trap, then



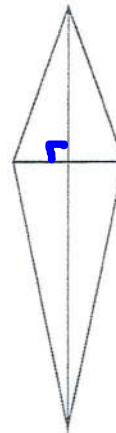
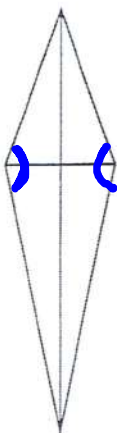
Diagonals are \cong



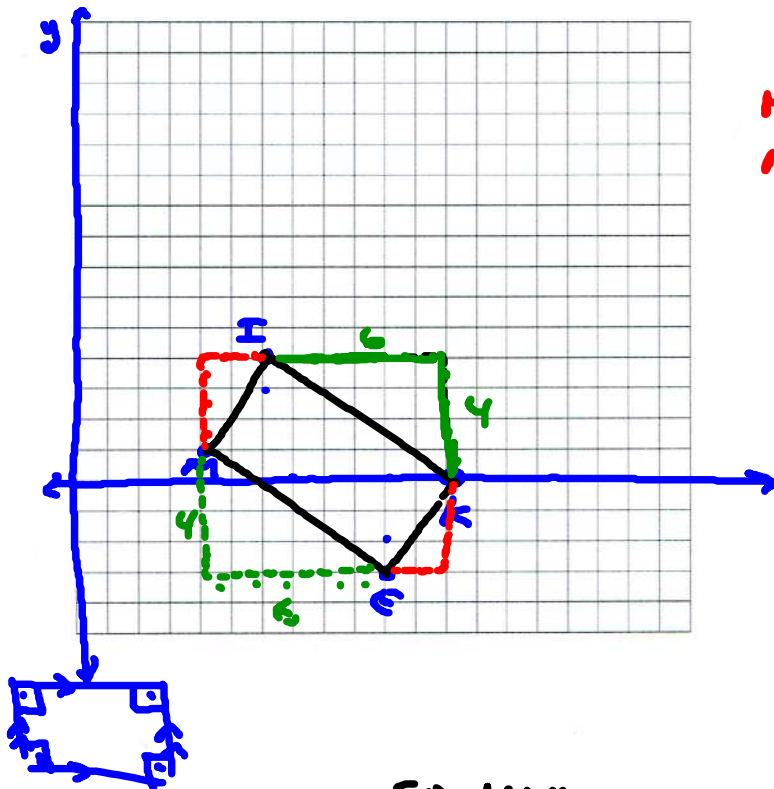
base \angle 's are \cong



If KITE, then 1 pair of opp. \angle 's are \cong
diagonals are \perp



7) Quadrilateral MIKE has vertices M(4,1), I(6,4), K(12,0), and E(10,-3). Use coordinate geometry to prove that quadrilateral MIKE is a rectangle.



→ A Parallelogram w/ Rt ∠

$$MI^2 = 3^2 + 2^2 \quad KE^2 = 2^2 + 3^2$$

$$MI^2 = 9 + 4$$

$$KE = \sqrt{13}$$

$$MI = \sqrt{13} \quad \overline{MI} \cong \overline{KE}$$

$$IK^2 = 6^2 + 4^2 \quad ME^2 = 6^2 + 4^2$$

$$IK^2 = 52$$

$$IK = \sqrt{52}$$

$$ME = \sqrt{52}$$

$$\overline{IK} \cong \overline{ME}$$

$$m\angle MI = \frac{3}{2}$$

$$m\angle IK = \frac{4}{-6} = -\frac{2}{3}$$

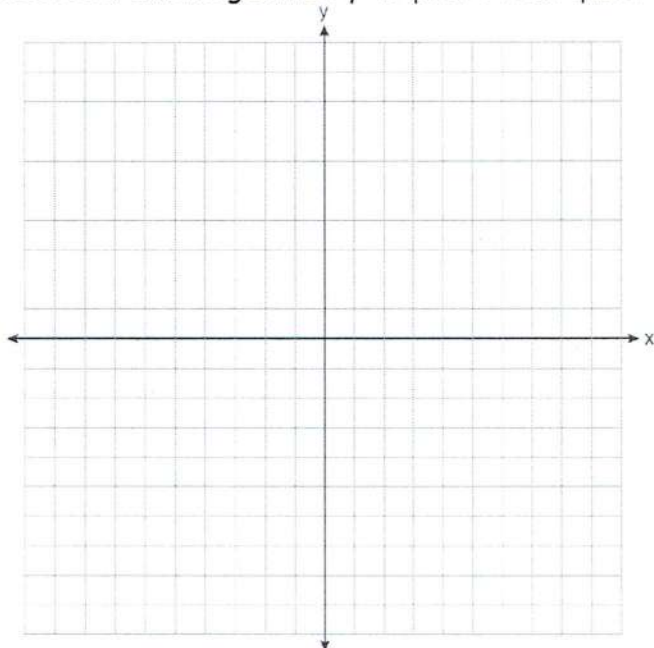
These are opp. recip so

$$MI \perp IK$$

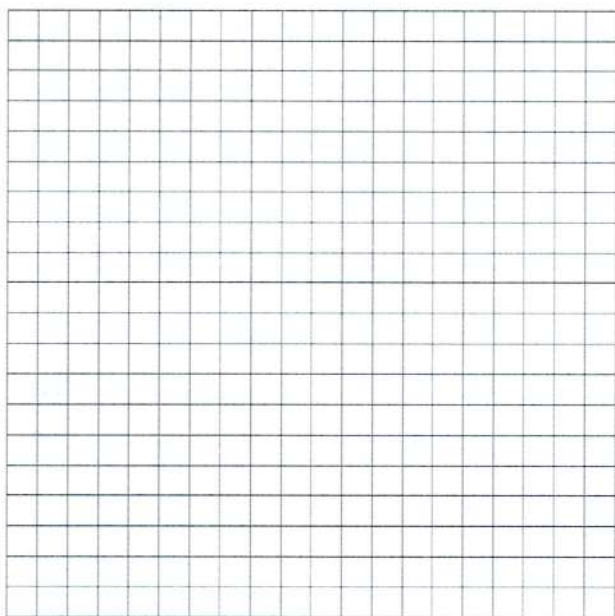
SO MIKE is a parallelogram with a Right ∠

SO MIKE is a rectangle

8) The coordinates of the vertices of quadrilateral DIAN are D(0,5), I(3,6), A(4,3), and N(1,2). Use coordinate geometry to prove that quadrilateral DIAN is a square.



9) Quadrilateral NORA has vertices $N(3,2)$, $O(7,0)$, $R(11,2)$, and $A(7,4)$. Use coordinate geometry to prove that a) quadrilateral NORA is a rhombus, and b) quadrilateral NORA is not a square.



10) The vertices of quadrilateral KAIT are $K(0,0)$, $A(a,0)$, $I(a+b,c)$, and $T(b,c)$. Use coordinate geometry to prove that quadrilateral KAIT is a parallelogram.

