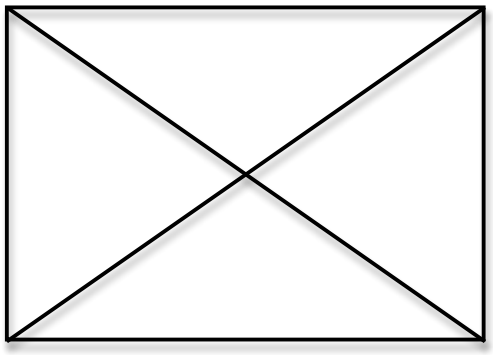
Math1312
Section 4.3
Rectangles

A rectangle is a parallelogram. Therefore, the properties of a parallelogram also apply to a rectangle.



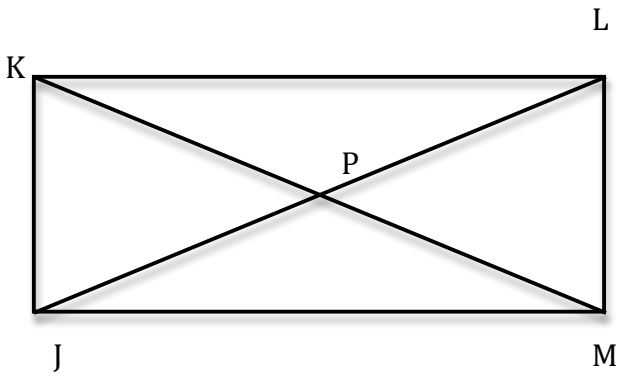
1) Opposite sides are congruent (they equal each other).
2) Opposite angles are congruent (they equal each other).
3) Consecutive angles are supplementary (they add up to 180)
4) Diagonals bisect each other (they cut each other in half)
5) Diagonals are congruent (they equal each other)
6) All four angles are 90.

The last two are "special" properties of rectangles.

<u>In-class Example 1:</u>

Find the value of "x"

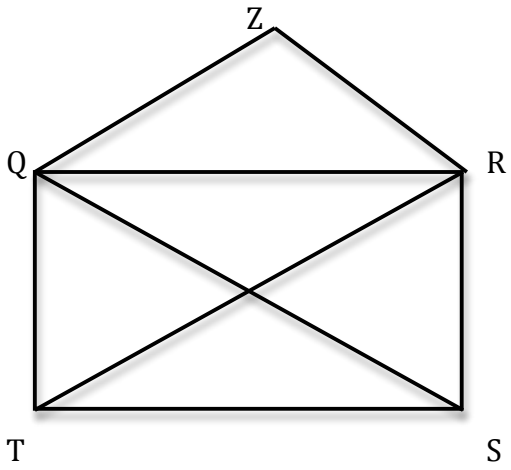
LP=3x+7
MK=26



In-class Example 2:

Given rectangle QRST and parallelogram QZRC, find the values of x and y.

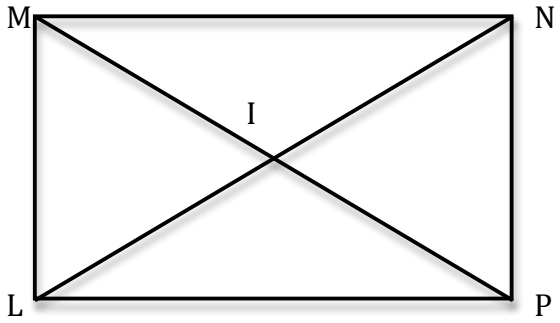
RZ= 6x
ZQ=3x+2y
CS=14-x



In-Class Example 3:

Find the measure of LN

LI=3x-2
MI= 2x+3



Squares and Rhombi

A square is a quadrilateral with 4 right angles and 4 congruent sides.

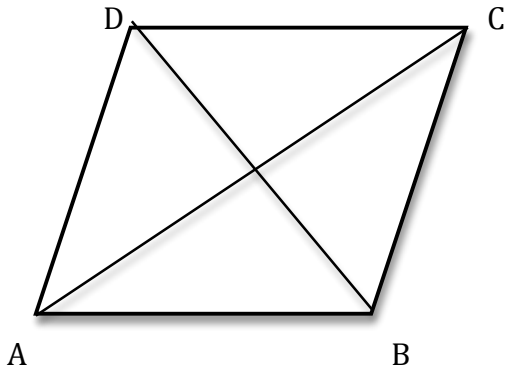
A rhombus is also a quadrilateral, but its characterized by 4 congruent sides; a rhombus does NOT have four congruent angles.

The properties of a parallelogram apply to both squares and rhombi. A rhombus however has two special properties:

1) The diagonals of a rhombus are perpendicular (they form right angles)
2) Each diagonal of a rhombus bisects a pair of opposite angles (the angles are cut in half).

In-class Example 1:

ABCD is a rhombus. m ∠ ADB=27. Find the m ∠ ADC.



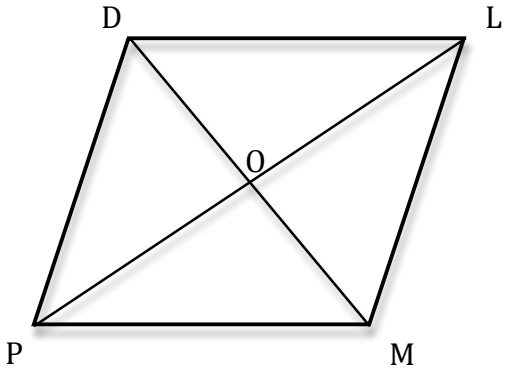
In-Class Example 2:

Given rhombus DLMP, where DM= 26. Determine whether each statement is true or false. Justify each answer.

a. OM=13

b. MD=PL

c. m $\angle$ DLO=m $\angle$ LDO

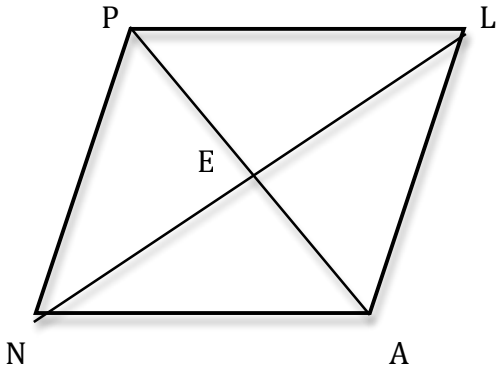


In-Class Example 3:

Given rhombus PLAN. Answer each of the following:

a. What type of triangle is Δ PLA?

b. What type of triangle is Δ PEN?



c. Is ΔPEN $\cong \Delta$AEL?

d. Is it true that PA=NL? Explain.