Geometry
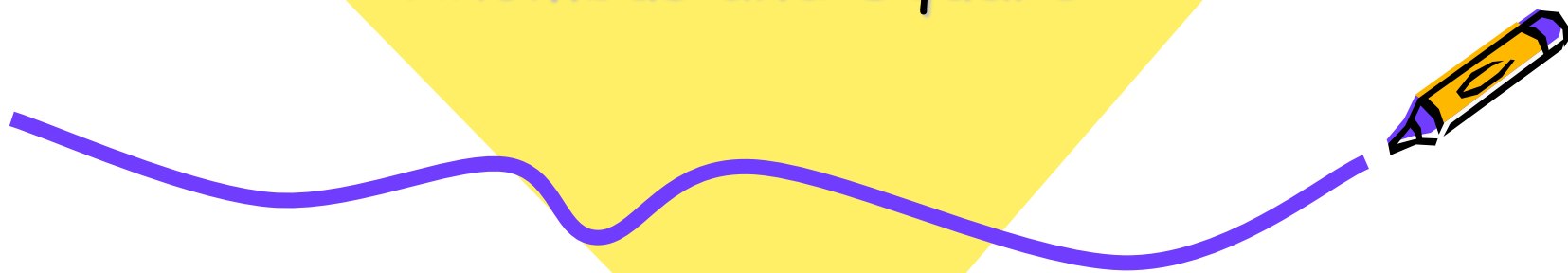
Rhombus and Square

Our Polygon Family Tree

Polygon

Triangle   Quadrilateral

Parallelogram   Trapezoid   Kite

Rectangle   Rhombus   Isosceles Trapezoid

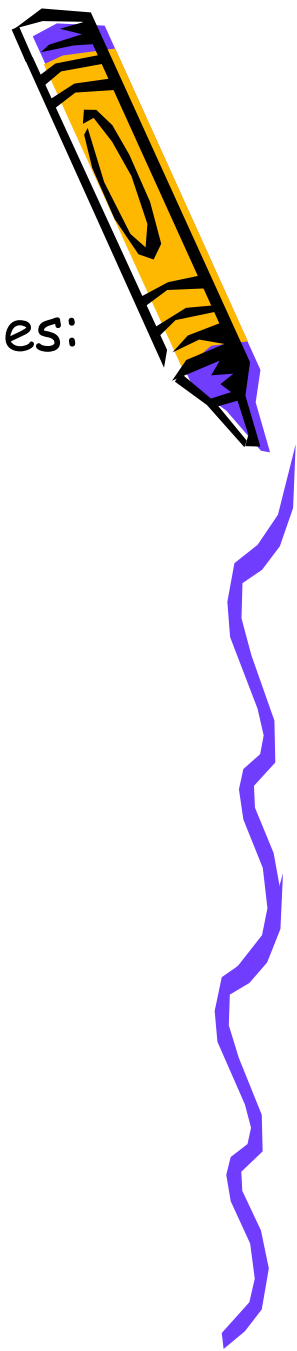Square
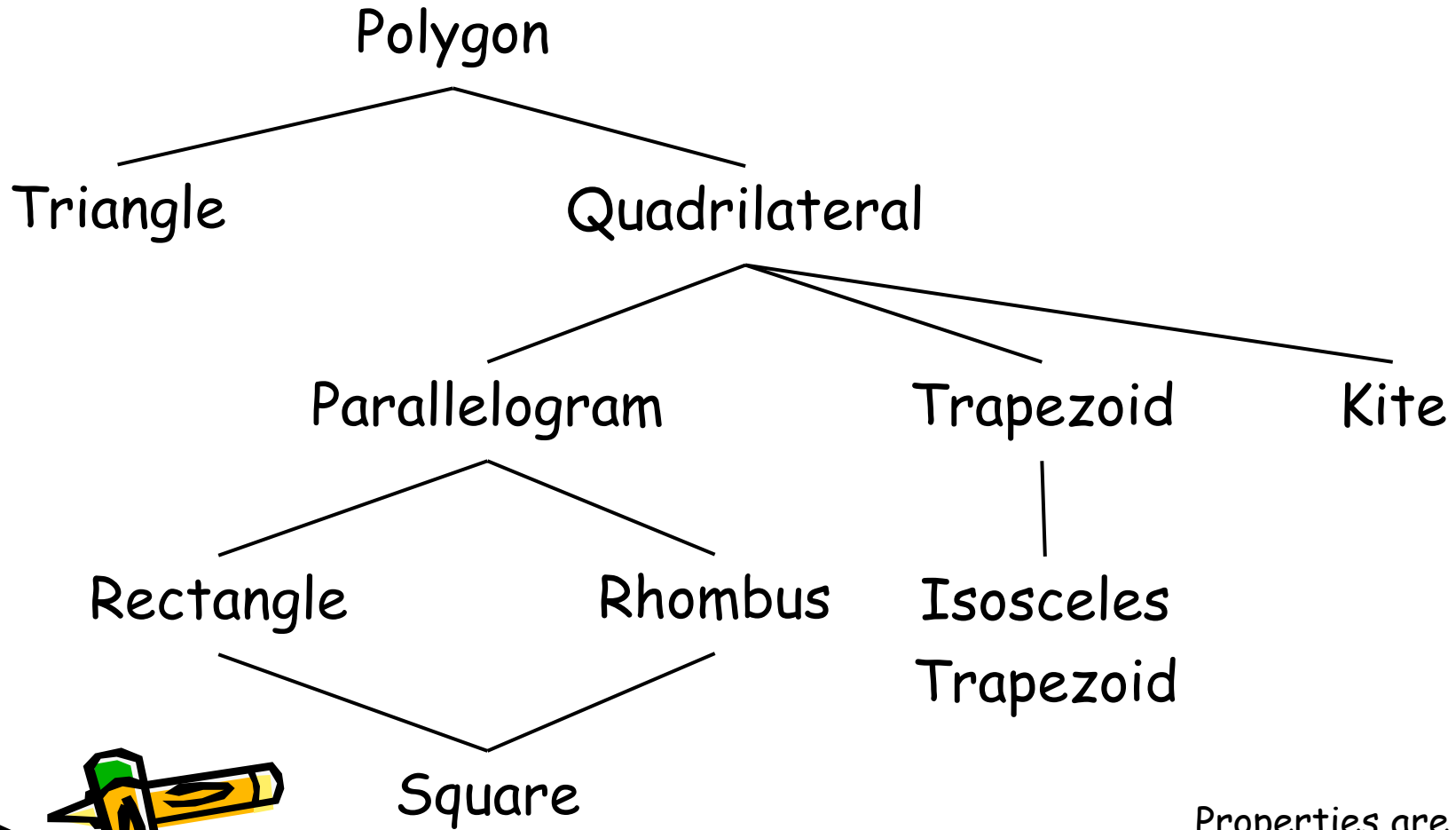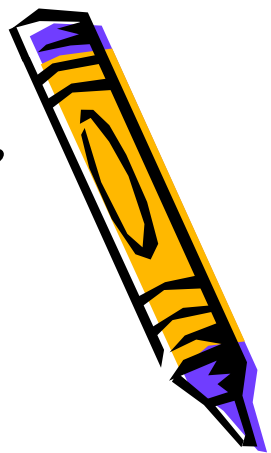
Properties are inherited as we move down the tree

Properties of a Rhombus

A rhombus is a parallelogram with a few added properties:
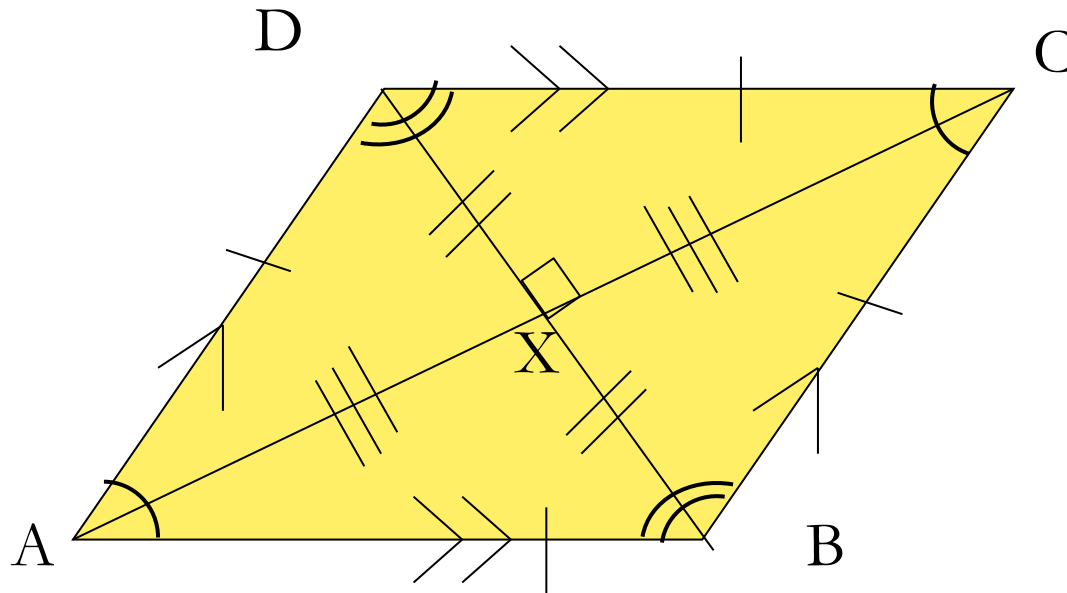
Properties of a parallelogram:
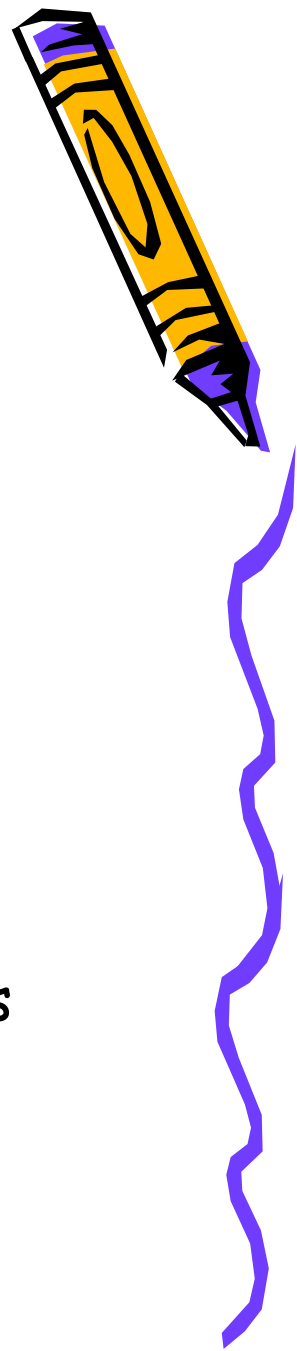
1.
2.
3.
4.
5.

Plus:

6. 4 sides are congruent
7. Diagonals are perpendicular
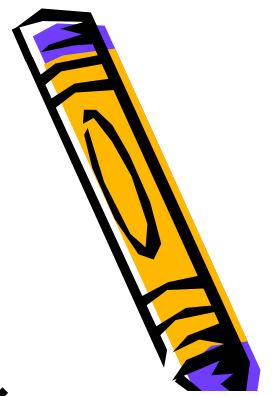8. Diagonals bisect the opposite angles

Properties of a Rhombus

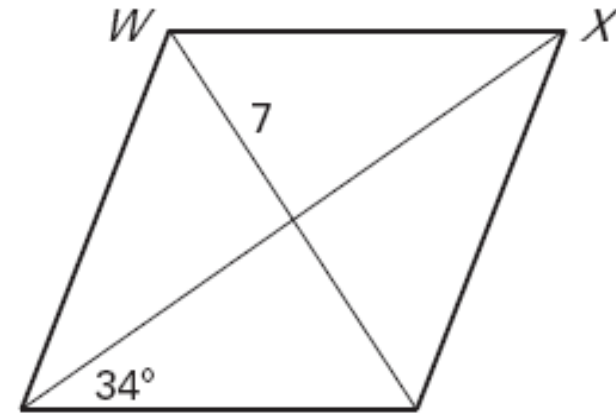What can you conclude about the 4 triangles that make up the rhombus?

Rhombus

The diagonals of rhombus *WXYZ* intersect at *V*. Given that $m\angle XZY = 34°$ and *WV* = 7, find the indicated measure.

13. $m\angle WZV$

14. $m\angle XYZ$

15. *WY*

16. *XY*

Properties of a Square

A square is a parallelogram that is both a rectangle and a rhombus.
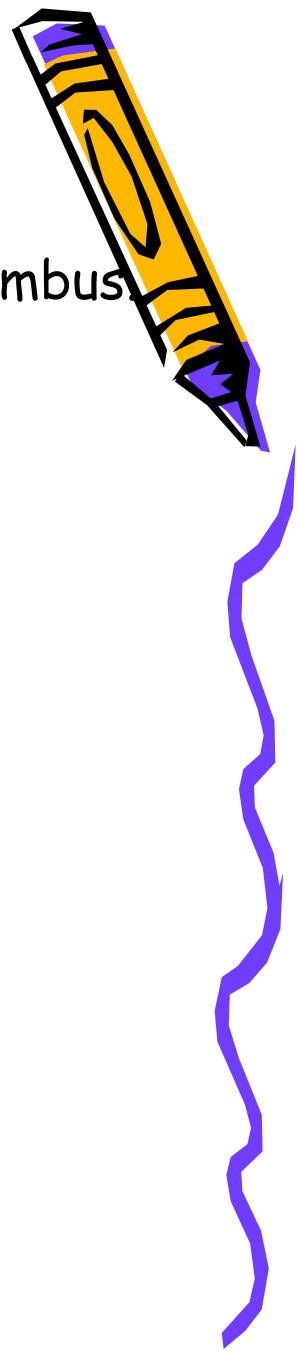
Properties of a parallelogram:

1. Both pairs of opposite sides parallel
2. Both pair of opposite sides are congruent.
3. Both pair of opposite angles are congruent.
4. Consecutive angles are supplementary.
5. Diagonals bisect each other
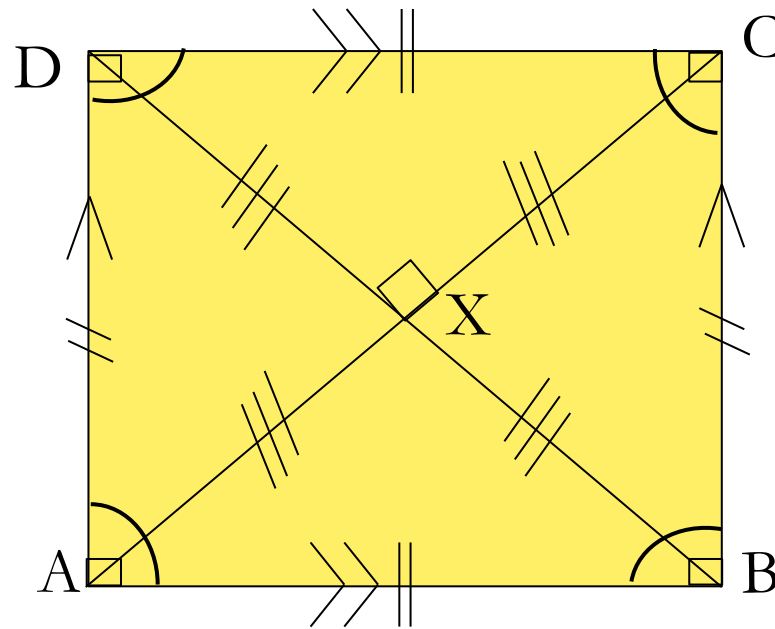
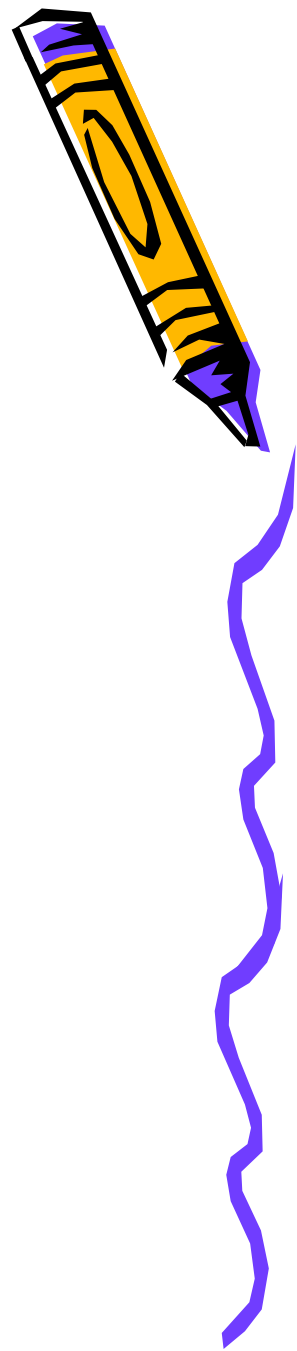Plus properties of a rectangle:

6.

7.

Plus properties of a rhombus:

8.

9.

10.

Properties of a Square

What can you conclude about the
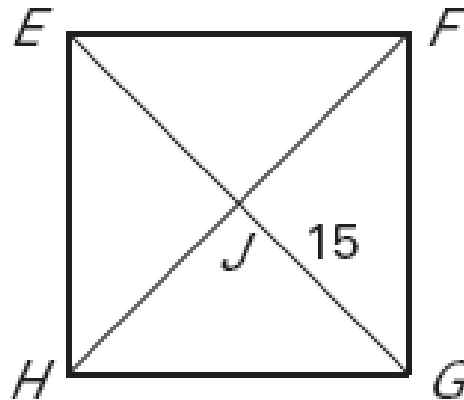4 triangles that make up the square?

Square

The diagonals of square *EFGH* intersect at *J*. Given that *GJ* = 15, find the indicated measure.

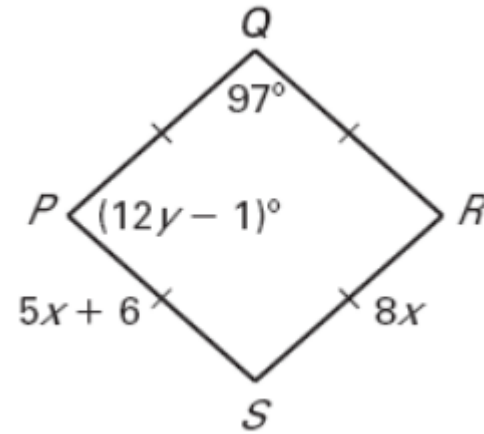**21.** $m\angle EJF$

22. $m\angle JFG$

23. *FH*

24. *EJ*

Practice

Given rhombus PQRS, solve for x and y.

Q

$97°$

P $(12y - 1)°$ R

$5x + 6$ $8x$

S

Given square KLMN, solve for x and y.

K L

$(7y + 3)°$

$2x + 1$ $4x - 7$

N M