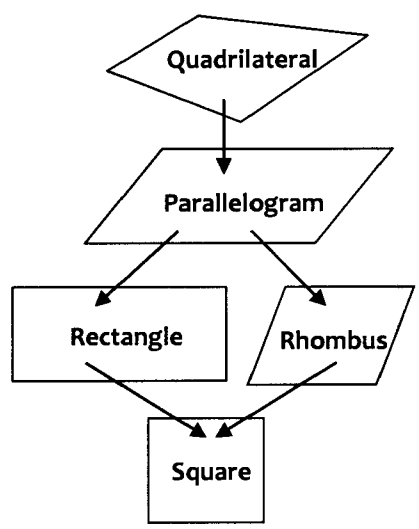
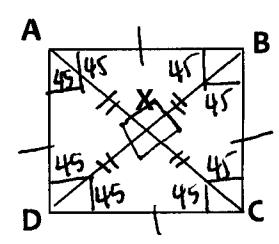
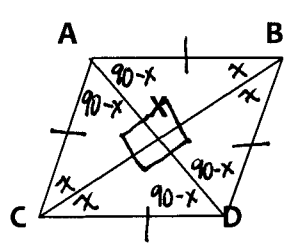
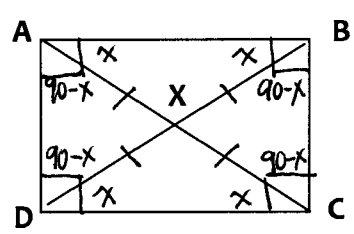


6-5 Rhombi & Squares



- If I want a quadrilateral to become a parallelogram, what must I do?
Make 2 pr. of opp. sides parallel
- If I want a parallelogram to become a rectangle, what must I do?
Make all 4 angles right angles
- If I want a parallelogram to become a rhombus, what must I do?
Make all 4 sides \cong
- If I want a parallelogram to become a square, what must I do?
Make all 4 sides & angles \cong

Now let's look at the properties that differentiate a rectangle, rhombus, and square.



Rectangle	Rhombus	Square
4 right angles	4 \cong sides	4 right angles
Diagonals are \cong	Diagonals are \perp	4 \cong sides
	Diagonals bisect opp. \angle s	Diagonals are \cong
		Diagonals are \perp
		Diagonals bisect opp. \angle s

You must commit these properties to memory in order to know the best name for your parallelogram!

1-6: Each figure is a parallelogram. Identify the special type and explain your reasoning.

1. Rhombus \square w/ \perp diag.

2. Square
Rhomb. w/ Rt. \angle s

3. Rectangle \square w/ Rt. \angle s

4. Rhombus \square w/ \cong sides

5. Rectangle w/ Diag \cong

6. Square
 \cong Diag = Rect.
 \perp Diag = Rhomb.
Rect + Rhomb = \square !

7-12: Match the properties of a quadrilateral with all of the types of quadrilaterals which have that property.

B & D

7. The diagonals are congruent.

A. Parallelogram

A - D

8. Both pairs of opposite sides are congruent.

B. Rectangle

A - D

9. Both pairs of opposite sides are parallel.

C. Rhombus

B & D

10. All angles are congruent.

D. Square

C & D

11. All sides are congruent.

C & D

12. Diagonals bisect the angles.

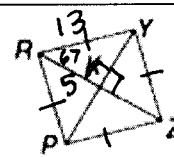
13-16: Given rhombus PRYZ, $RK = 5$, $RY = 13$, and $m\angle YRZ = 67^\circ$, find each measure.

13. $KY = 12$

14. $PK = 12$ $KY = PK$

15. $m\angle YKZ = 90^\circ$ Diag. are \perp

16. $m\angle PZR = 67^\circ$ Alt. int. $\angle s \cong$



$5^2 + KY^2 = 13^2$
 $KY^2 = 144$
 $KY = 12$

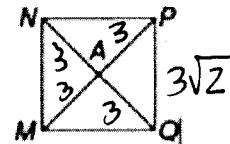
17-20: Given square MNPQ, $PQ = 3\sqrt{2}$, find each measure.

17. $AQ = 3$ $45-45-90 \Delta$

18. $PM = 6$

19. $m\angle APQ = 45^\circ$ All $90^\circ \angle s$ are bisected to form $45^\circ \angle s$

20. $m\angle MNP = 90^\circ$ All angles are rt $\angle s$



21-25: Given rhombus DKLM, find each measure.

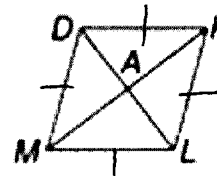
21. If $DK = 8$, then $KL = 8$. All sides are \cong

22. If $m\angle DML = 82^\circ$, then $m\angle DKM = 41^\circ$. $\angle s$ are bisected by the diagonals

23. If $m\angle KAL = 2x - 8$, then $x = 49$. $2x - 8 = 90$
 $2x = 98$

24. If $DA = 4x$ and $AL = 5x - 3$, then $DL = 24$ and $AD = 12$. $4x = 5x - 3$
 $-x = -3$
 $x = 3$ $DA + AL = DL$
 $12 + 12 = 24$

25. If $DM = 5y + 2$ and $DK = 3y + 6$, then $KL = 12$. $5y + 2 = 3y + 6$
 $2y = 4$
 $y = 2$ $KL = DK = 3(2) + 6$



26: Given the edges of a window shown below, decide if the window is a square or rhombus. Justify your answer!

$m\overline{AB} = \frac{6}{5}$

$m\overline{BC} = -\frac{6}{5}$

$m\overline{CD} = \frac{6}{5}$

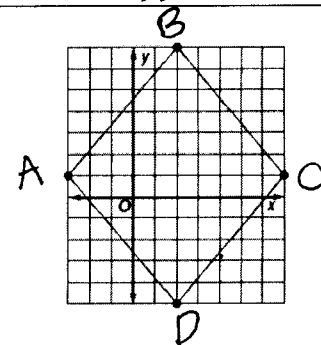
$m\overline{AD} = -\frac{6}{5}$

$\overline{AB} \not\perp \overline{BC}$
b/c the slopes are not opp reciprocals, so it is NOT a square

$AB = \sqrt{36 + 25} = \sqrt{61}$

$BC = \sqrt{36 + 25} = \sqrt{61}$

It is a rhombus b/c a \square w/ consec. sides \cong will be a rhombus!



\square b/c opp sides \parallel