




Geometry (H)

Section 5.4 – Identifying Quads in the Coordinate Plane

**Directions:** Graph each quadrilateral then determine the type of quadrilateral: rectangle, rhombus, square or parallelogram. Join the vertices in the given order. Use must use slope or distance to verify the type of quadrilateral.

1. H(-1,3)    A(3,2)    T(1,-1)    S(-3,0)

3. C(-2,1)    O(0,2)    W(1,0)    S(-1,-1)



4. K(3,1)    I(3,-3)    T(-2,-3)    E(-2,1)

6. C(5,2)    A(2,5)    K(-1,2)    E(2,-1)

7. N(5,2)    I(1,9)    C(-3,2)    E(1,-5)



## 5-4 Special Parallelograms

28. Given:  $\square ABZY$ ;  $\overline{ZY} \cong \overline{BX}$ ;  
 $\angle 1 \cong \angle 2$

Prove:  $ABZY$  is a rhombus.

29. Given:  $\square ABZY$ ;  $\overline{AY} \cong \overline{BX}$

Prove:  $\angle 1 \cong \angle 2$  and  $\angle 1 \cong \angle 3$

30. Given: Rectangle  $QRST$ ;

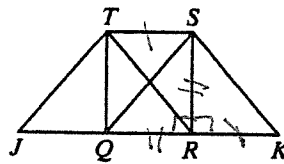
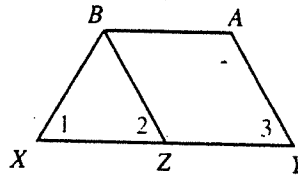
$\square RKST$

Prove:  $\triangle QSK$  is isosceles.

31. Given: Rectangle  $QRST$ ;

$\square RKST$ ;  $\square JQST$

Prove:  $\overline{JT} \cong \overline{KS}$



34. Prove: If the diagonals of a parallelogram are perpendicular, then the parallelogram is a rhombus.

The coordinates of three vertices of a rhombus are given, not necessarily in order. Plot the points and find the coordinates of the fourth vertex. Measure the sides to check your answer.

38.  $O(0, 0)$ ,  $L(5, 0)$ ,  $D(4, 3)$ ,  $V(\underline{\quad}, \underline{\quad})$

Section 5.4 – Special Parallelogram continued ...

1. Put an X in the box if the shape has the given properties.

Property	Parallelogram	Rectangle	Rhombus	Square
Both pairs of opposite sides //				
Diagonals are $\perp$				
Diagonals are $\cong$				
Diagonals bisect each other				
All angles are right angles				
One pair of opposite sides $\cong$				
All sides are $\cong$				
Both pairs of opposite angles $\cong$				
Diagonals bisect the angles they are drawn from				
All angles are $\cong$				

2. Let's prove the properties we discovered yesterday!

**Thm: The diagonals of a rectangle are congruent.**

Given:

Diagram:

Prove:

**Thm: The diagonals of a rhombus are perpendicular.**

Given:

Diagram:



Prove:

**Thm: Each diagonal of a rhombus bisects the angles they are drawn from.**

Given:

Diagram:



Prove:

