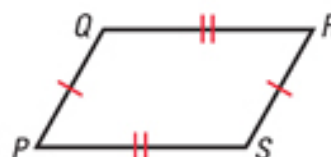# Honors Geometry

Notes Section 8.2

Use Properties of Parallelograms

Parallelogram: _____

THEOREM 8.3

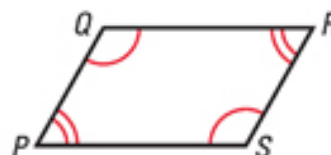If a quadrilateral is a parallelogram, then its opposite sides are congruent.

If $PQRS$ is a parallelogram, then $\overline{PQ} \cong \overline{RS}$ and $\overline{QR} \cong \overline{PS}$.

THEOREM 8.4

If a quadrilateral is a parallelogram, then its opposite angles are congruent.

If $PQRS$ is a parallelogram, then $\angle P \cong \angle R$ and $\angle Q \cong \angle S$.
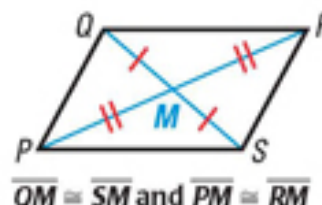
THEOREM 8.5

If a quadrilateral is a parallelogram, then its consecutive angles are supplementary.
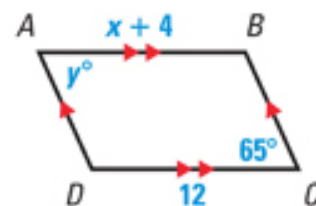
If $PQRS$ is a parallelogram, then $x° + y° = 180°$.

THEOREM 8.6

If a quadrilateral is a parallelogram, then its diagonals bisect each other.

$\overline{QM} \cong \overline{SM}$ and $\overline{PM} \cong \overline{RM}$

EXAMPLE 1   Find the values of x and y.

EXAMPLE 2   Part of the extending arm of a desk lamp is a parallelogram. The angles of the parallelogram change as the lamp is raised and lowered. Find m∠BCD when m∠ADC = 110°.

EXAMPLE 3   The diagonals of parallelogram LMNO intersect at point P. What are the coordinates of P?