

NOTES 7.4: SQUARES & RHOMBI

Objective: _____

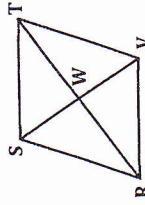
RHOMBUS: A parallelogram with 4 \cong sides

Because a rhombus is a special type of parallelogram, it has all the properties of a parallelogram. In addition to all of the properties of a parallelogram, a rhombus has three additional special properties. They are:

- 1) Opposite sides are \parallel .
- 2) Opposite sides are \cong .
- 3) Opposite \angle s are \cong .
- 4) Consecutive \angle s are supplementary.
- 5) Diagonals bisect each other.
- 6) _____
- 7) _____
- 8) _____

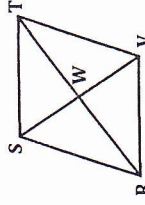
EXAMPLE 1:

If RSTV is a rhombus and $m\angle RST = 67^\circ$, find $m\angle RSW$.



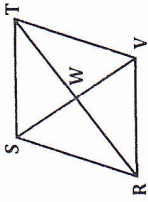
EXAMPLE 2:

Find $m\angle SVT$ if RSTV is a rhombus and $m\angle STV = 135^\circ$.



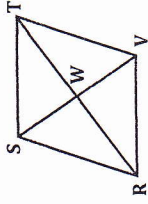
EXAMPLE 3:

If RSTV is a rhombus and $m\angle SWT = (2x + 8)^\circ$, find x .



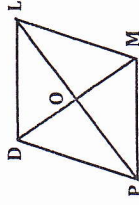
EXAMPLE 4:

What is the value of x if RSTV is a rhombus, $m\angle WRV = (5x + 5)^\circ$, and $m\angle WRS = (7x - 19)^\circ$?



EXAMPLE 5:

Use rhombus DLMP with $DM = 26$ to determine whether each statement is true or false. Justify your answers.



- a) $OM = 13$
- b) $\overline{MD} \cong \overline{PL}$
- c) $m\angle DLO = m\angle LDO$

Notes 7.4 – Squares & Rhombi (Continued)

SQUARE: A parallelogram that is both a rectangle & a rhombus

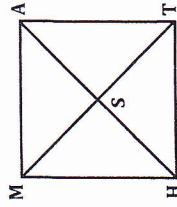
Because a square is a special type of parallelogram, it has **all** of the properties of a parallelogram, in addition to those of a rectangle and a square. They are ...

- 1) Opposite sides are \parallel .
- 2) Opposite sides are \cong .
- 3) Opposite \angle s are \cong .
- 4) Consecutive \angle s are supplementary.
- 5) Diagonals bisect each other.
- 6) 4 right \angle s.
- 7) Diagonals are \cong .
- 8) 4 \cong sides.
- 9) Diagonals are \perp .
- 10) Diagonals bisect opposite \angle s.

EXAMPLE 1:

MATH is a square.

- a) If $MA = 8$, then $HT =$ _____.
- b) $m\angle HST =$ _____.
- c) $m\angle MAT =$ _____.
- d) If $HS = 2$, then $HA =$ _____ and $MT =$ _____.



EXAMPLE 2:

Use square ABCD and the given information to find each.

- a) If $m\angle AED = (5x + 5)^\circ$, find 'x'.

x = _____

- b) If $m\angle BAC = (5x)^\circ$, find 'x'.

x = _____

