Name: _____ Date: _____

UNIT 4 **LESSON 8**

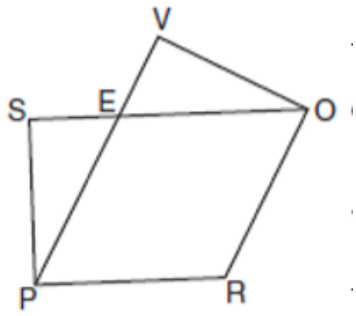
AIM: HOW DO WE PROVE A QUADRILATERAL IS A RHOMBUS?

Do Now: A parallelogram will always be rhombus in all of the following scenarios ***except*** when:

a) Diagnols are perpendicular bisectors
b) Diagonals are congruent
c) Diagonals bisect opposite angles
d) All sides are congruent

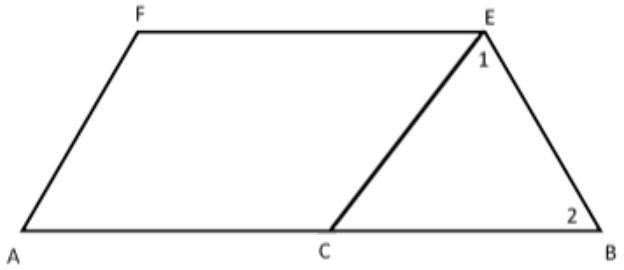
USING PROPERTIES OF RHOMBI TO PROVE TRIANGLES ARE CONGRUENT

1. *Given: PROE* is a rhombus and $\measuredangle SPE \cong \measuredangle VOE$
   Prove: $\overline{SE} \cong \overline{EV}$



STATEMENT	REASON

2. *Given: ACEF* is a rhombus; $\overline{AC} \cong \overline{BC}$
   Prove: $\measuredangle 1 \cong \measuredangle 2$

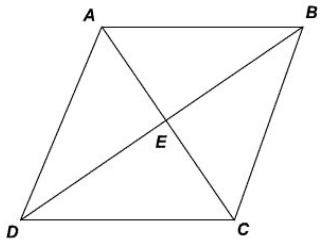


STATEMENT	REASON
1. *ACEF* is a rhombus; $\overline{AC} \cong \overline{BC}$	1.
2. $\overline{AC} \cong \overline{CE}$	2.
3. $\overline{CE} \cong \overline{BC}$	3.
4. ΔCEB is an isosceles triangle	4.
5. $\measuredangle 1 \cong \measuredangle 2$	5.

REASONS TO PROVE THAT A QUADRILATERAL IS A RHOMBUS:

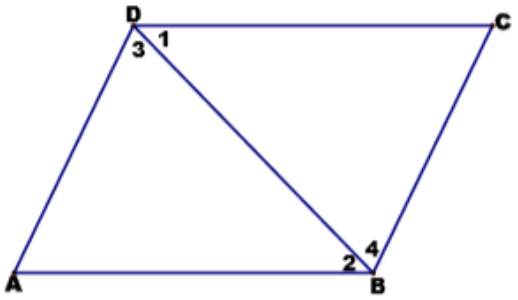
YOU ALWAYS HAVE TO HAVE A PARALLELOGRAM FIRST! *Which means if you do not have a parallelogram given to you, you need to prove that first!*
1.
2.
3.

3. *Given:* Quadrilateral *ABCD*, $\overline{AC}$ and $\overline{BD}$ bisect each other and $\overline{AC} \perp \overline{BD}$
Prove: ABCD is a rhombus



STATEMENT	REASON

4. *Given:* $\measuredangle 1 \cong \measuredangle 2$
$\measuredangle 3 \cong \measuredangle 4$
$\measuredangle 2 \cong \measuredangle 3$
Prove: ABCD is a rhombus

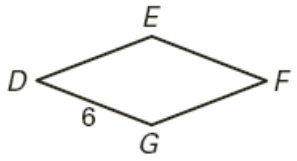


STATEMENT	REASON

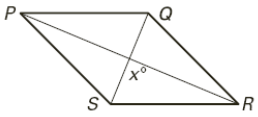
Name: _____ Date: _____

UNIT 4 **LESSON 8 HOMEWORK**

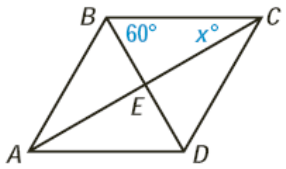
Directions: For #'s 1-3, given the following rhombi, find the missing pieces.

1. 

DE = _____ EF = _____ GF = _____

2. 

x = _____

3. 

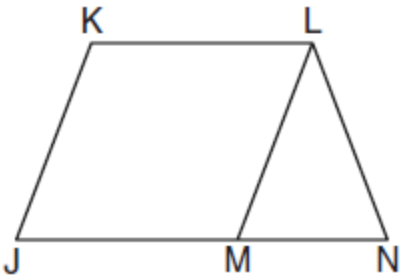
x = _____

4. Given: *JKLM* is a parallelogram.

$\overline{JM} \cong \overline{LN}$

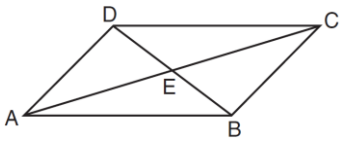
$\angle LMN \cong \angle LNM$

Prove: *JKLM* is a rhombus



STATEMENTS	REASONS
1.	1.
2. Triangle LMN is an isosceles triangle	2.
3.	3. Isosceles triangles have two congruent sides
4. $\overline{JM} \cong \overline{ML}$	4. Substitution
5.	5. A parallelogram with consecutive sides congruent is a rhombus.

5. *Given*: Parallelogram *ABCD* shown below, diagonals $\overline{AC}$ and $\overline{BD}$ intersect at *E*.
Prove: $\angle ACD \cong \angle CAB$



STATEMENTS	REASONS
1. Parallelogram *ABCD* shown below, diagonals $\overline{AC}$ and $\overline{BD}$ intersect at *E*	1.
2. $\overline{AB} \parallel \overline{CD}$	2.
3. $\angle ACD \cong \angle CAB$	3.