TOPIC: **4.3 Prove Triangles Congruent by SSS**	NAME: Mrs. H DATE: Key

ESSENTIAL QUESTION: How can you use side lengths to prove △ are ≅?

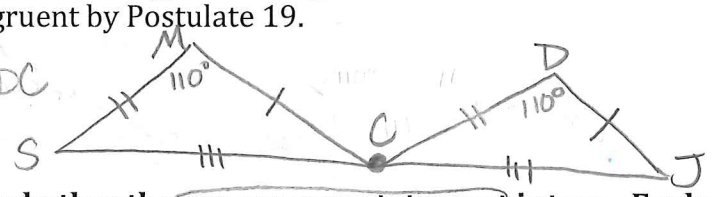
QUESTIONS:

Postulate 19: Side-Side-Side Congruence Postulate (SSS △ ≅)

If three sides of one triangle are congruent to three sides of another triangle, then the two triangles are congruent.

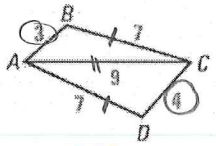
A1. Sketch obtuse triangles CMS and JDC (mark ∠C in common) that are congruent by Postulate 19.

△CMS ≅ △JDC



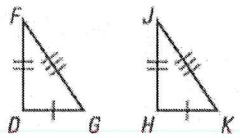
A2. Determind whether the congruence statement is true. Explain.

a. $\Delta ACB \cong \Delta CAD$



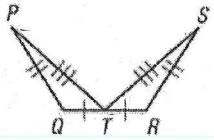
NO
3 ≠ 4

b. $\Delta DFG \cong \Delta HJK$



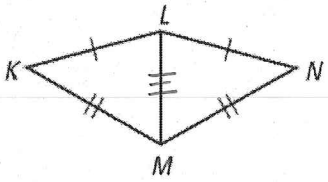
yes
SSS △≅

c. $\Delta QTP \cong \Delta TRS$



NO
$\overline{TP} \neq \overline{RS}$

A3. Given: $\overline{KL} \cong \overline{NL}, \overline{MK} \cong \overline{MN}$
Prove: $\Delta KLM \cong \Delta NLM$



$\overline{KL} \cong \overline{NL}$	Given
$\overline{MK} \cong \overline{MN}$	Given
$\overline{LM} \cong \overline{LM}$	Reflexive
$\angle KML \cong \Delta NML$	SSS △≅
OR $\Delta LMK \cong \Delta LMN$	
OR $\Delta KLM \cong \Delta NLM$	

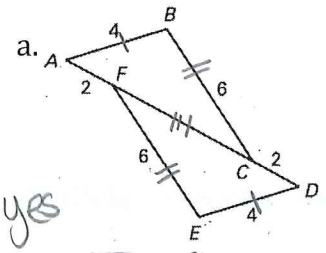
SUMMARY:

If all three sides of one △ are ≅ to three sides of a different △ then the two △s are ≅.
* SSS △≅ Thm.

QUESTIONS:

A4. Determine whether $\Delta ABC \cong \Delta DEF$. *Explain* your reasoning.

a.



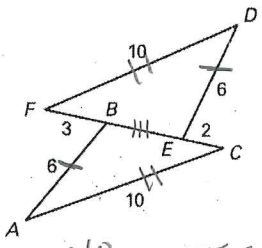
yes

$\overline{FC} \cong \overline{FC}$ reflexive

$\overline{FC}+2$ Seg. Add Post.

SSS $\Delta \cong$

b.



NO $EF \neq BC$

$EB+3 \neq BE+2$

A5. Use the given coordinates to determine if $\Delta ABC \cong \Delta DEF$.

$A(1,2), B(4,1), C(3,4)$
$D(5,2), E(8,1), F(6,4)$

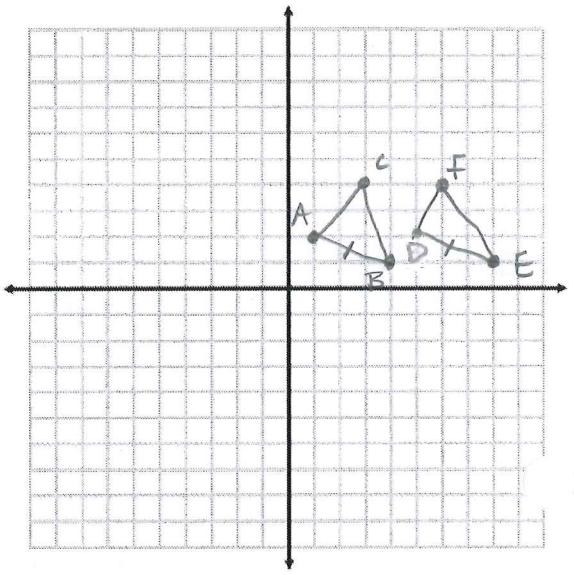
$AB = \sqrt{3^2+1^2} = \sqrt{10}$

$DE = \sqrt{3^2+1^2} = \sqrt{10}$

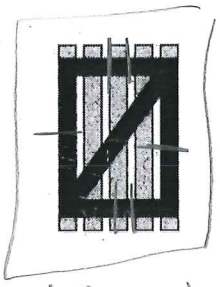
$BC = \sqrt{1^2+3^2} = \sqrt{10}$

$EF = \sqrt{2^2+3^2} = \sqrt{13}$ $>$ $\neq$

$\Delta \neq$



A6. Two different gate doors are shown. Which gate door is more stable? *Explain* your reasoning.



More stable due to a diagonal support with fixed length sides (SSS)

$\Delta \cong$ ∴ shape is fixed → will not change

B7. Find all values of x that make the triangles congruent. ***Explain***.

$2x+3 = 7x-12$

$+12 \quad -2x$

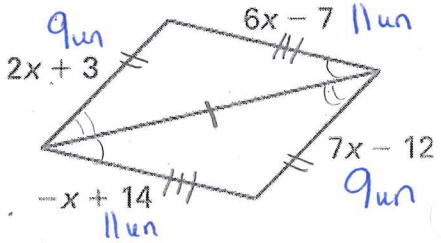
$15 = 5x$

$x = 3$

$6x-7 = -x+14$

$7x = 21$

$x = 3$



Try this..

$2x+3 = -x+14$

$3x = 11$

$x = 11/3$

$6x-7 = 7x-12$

$+12 \quad -6x$

$5 = x$

$11/3 \neq 5$ Does not work