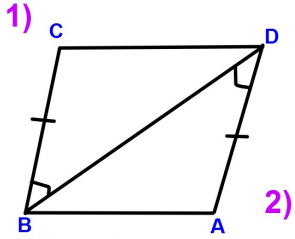
Warm-up:

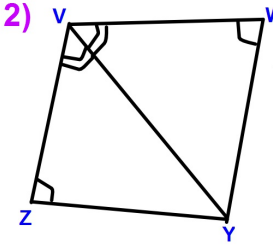
Determine how the triangles are congruent.
Write the congruence statement.

1)



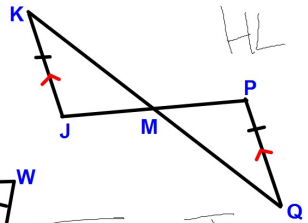
$\overline{BC} \cong \overline{DA}$
$\angle B \cong \angle D$
$\overline{BD} \cong \overline{BD}$
By SAS

2)



$\overline{VY} \cong \overline{VY}$
$\angle Z \cong \angle W$
$\angle V \cong \angle V$
by ~~AAS~~ ~~AAA~~

3)



HL

$\overline{KJ} \cong \overline{PQ}$
$\angle M \cong \angle M$

ACT/SAT Practice:

3) What is the slope of the line
$4x = -3y + 8$?

$y = \frac{4x - 8}{-3}$

$y = \frac{-4x}{3} + \frac{8}{3}$

$m = \frac{-4}{3}$

18 What is the solution to the equation $\frac{2x - 3}{x - 1} = \frac{8x + 1}{4x + 5}$?

A $\frac{-14}{5}$

B $\frac{-14}{9}$

C $\frac{14}{9}$

(D) $\frac{14}{5}$

$8x^2 - 2x - 15 = 8x^2 - 7x - 1$
$-8x^2 + 8x + 1 \quad -8x^2 + 8x + 1$

$\frac{-14}{-5} = \frac{-5x}{5}$

$x = \frac{14}{5}$

Unit 5 - Geometry

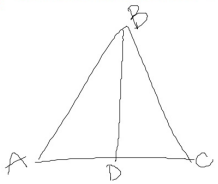
Objective: G.CO.10

Day 5 - Congruent Triangle Proofs

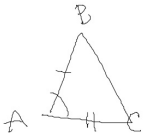
Useful Properties:

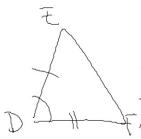
1) Reflexive Property - $a \cong a$

$\overline{BD} \cong \overline{BD}$



2) CPCTC - corresponding parts of congruent triangles are congruent.





$\overline{AB} \cong \overline{DE}$

$\angle A \cong \angle D$

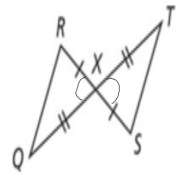
$\overline{AC} \cong \overline{DF}$

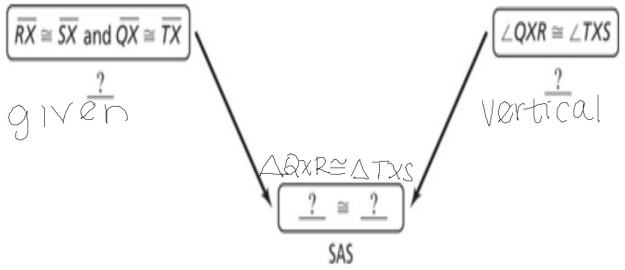
$\triangle ABC \cong \triangle DEF$ by SAS

1) Flow Proof:

Given: $\overline{RX} \cong \overline{SX}$, $\overline{QX} \cong \overline{TX}$

Prove: $\Delta QXR \cong \Delta TXS$

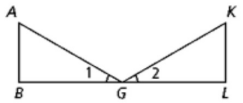


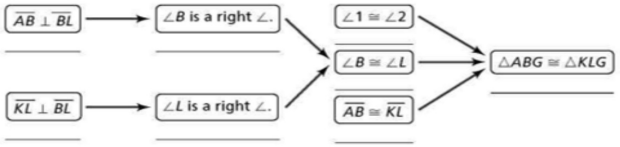


2) Flow Proof:

Given: $\angle 1 \cong \angle 2$, $\overline{AB} \perp \overline{BL}$, $\overline{KL} \perp \overline{BL}$, $\overline{AB} \cong \overline{KL}$

Prove: $\Delta ABG \cong \Delta KLG$

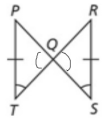




3) Two-Column Proof:

Given: $\overline{PT} \cong \overline{RS}$, $\angle PTR \cong \angle RSP$ (1st statement)

Prove: $\Delta PQT \cong \Delta RQS$ (last statement)

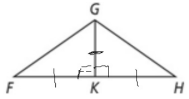


Statements	Reasons
1) $\overline{PT} \cong \overline{RS}$, $\angle PTR \cong \angle RSP$	1) Given
2) $\angle PQT \cong \angle RQS$	2) vertical angles
3) $\Delta PQT \cong \Delta RQS$	3) AAS

4) Two-Column Proof:

Given: $\overline{GK}$ is the perpendicular bisector of $\overline{FH}$.

Prove: $\overline{FG} \cong \overline{HG}$



$\overline{Gk} \cong \overline{Gk}$ reflixive prop.

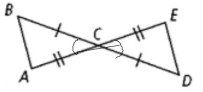
SAS

Statements	Reasons
1) $\overline{GK}$ is the perpendicular bisector of $\overline{FH}$.	1) given
2) $\overline{Fk} \cong \overline{Hk}$	2) Def. of perpendicular bis.
3) $\angle GKF \cong \angle GKH$	3) Def. of perpendicular bis; all right $\triangle$ are $\cong$.
4) $\overline{Gk} \cong \overline{Gk}$	4) Refl. Prop. of $\cong$
5) $\triangle FGK \cong \triangle HGK$	5) SAS
6) $\overline{FG} \cong \overline{HG}$	6) Corresp. parts of $\cong$ $\triangle$ are $\cong$.

5) Write a two-column proof.

Given: $\overline{BC} \cong \overline{DC}, \overline{AC} \cong \overline{EC}$

Prove: $\Delta ABC \cong \Delta EDC$



$\angle C \cong \angle C$ vertical angles

Statement	Reason
1. $\overline{BC} \cong \overline{DC}, \overline{AC} \cong \overline{EC}$	1. given
2. $\angle C \cong \angle C$	2. vertical angle
3. $\triangle ABC \cong \triangle EDC$	3. SAS

6) Write a two-column proof.

Given: $\overline{WX} \parallel \overline{YZ}, \overline{WX} \cong \overline{YZ}$

Prove: $\Delta WXZ \cong \Delta YZX$

$\angle X \cong \angle Z$

$\angle M \cong \angle M$ V.a

Statement	Reason
1. $\overline{WX} \parallel \overline{YZ}, \overline{WX} \cong \overline{YZ}$ $\angle X \cong \angle Z$	1. given
2. $\angle M \cong \angle M$	2. vertical angle
3. $\triangle WXZ \cong \triangle YZA$	3. ~~AA~~ S