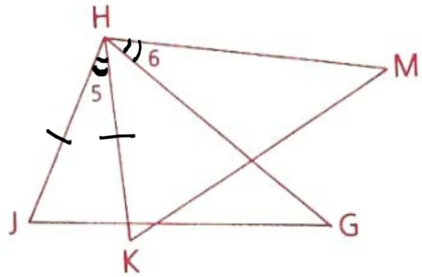
3.5 Q&A

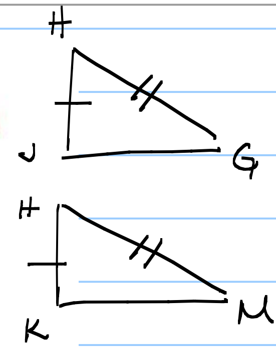
Note Title 10/20/2015

SSS
SAS
~~ASA~~

5 Given: $\overline{JH} \cong \overline{KH}$,
$\overline{HG} \cong \overline{HM}$,
$\angle 5 \cong \angle 6$

Conclusion: $\triangle JHG \cong \triangle KHM$

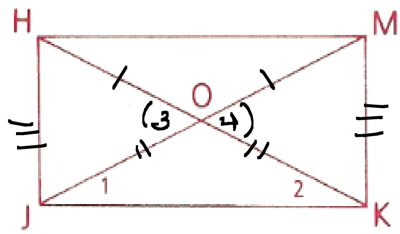


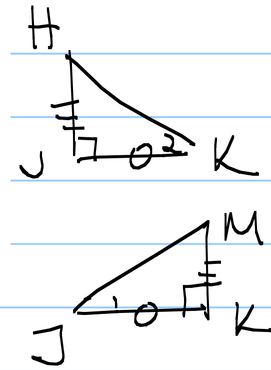


	S	R
S	1. $\overline{JH} \cong \overline{KH}$	1. Given
	2. $\angle 5 \cong \angle 6$	2. Given
	3. $\angle KHG \cong \angle KHG$	3. Reflexive
A	4. $\angle JHG \cong \angle KHM$	4. Add (2,3)
S	5. $\overline{HG} \cong \overline{HM}$	5. Given
	6. $\triangle JHG \cong \triangle KHM$	6. SAS (1,4,5)

12 Given: $\overline{HO} \cong \overline{MO}$,
$\overline{JO} \cong \overline{KO}$;
$\overline{HJ}$ is an altitude of $\triangle HJK$.
$\overline{MK}$ is an altitude of $\triangle MKJ$.

Prove: $\angle 1 \cong \angle 2$





S	R
1. $\overline{HO} \cong \overline{MO}$	1. Given
2. $\angle 3 \cong \angle 4$	2. Vert $\angle$s $\Rightarrow \cong \angle$s
3. $\overline{JO} \cong \overline{KO}$	3. Given
4. $\triangle HOJ \cong \triangle MOK$	4. SAS
5. $\overline{HJ} \cong MK$	5. CPCTC
6. $\overline{HJ}$ alt & $\overline{MK}$ alt	6. Given
7. $\angle HJK$ & $\angle MKJ$ rt $\angle$s	7. alt $\Rightarrow$ rt $\angle$s
8. $\angle HJK \cong \angle MKJ$	8. rt $\angle$s $\Rightarrow \cong \angle$s
9. $\overline{JK} \cong \overline{KJ}$	9. ref
10. $\triangle HJK \cong \triangle MKJ$	10. SAS
11. $\angle 2 \cong \angle 1$	11. CPCTC

1. Given
2. Vert $\angle \Rightarrow \cong \angle$s
3. SAS
4. Given
5. alt $\Rightarrow$ rt $\angle$
6. Given
7. alt $\rightarrow$ rt $\angle$
8. rt $\angle$s $\Rightarrow \cong \angle$
9. CPCTC
10. Subtract

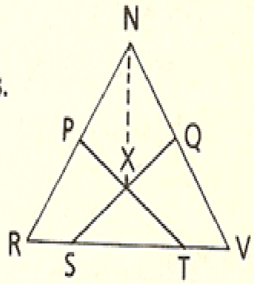
13 Given: $\overline{NR} \cong \overline{NV}$

P and Q are mdpts.

$\angle R \cong \angle V$

$\overline{PX} \cong \overline{QX}$

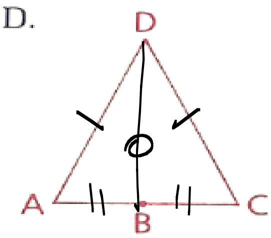
Prove: $\triangle XST$ is isos.



1	$\overline{NR} \cong \overline{NV}$	1	Given
2	P and Q are mdpts.	2	Given
3	$\overline{NP} \cong \overline{NQ}$, $\overline{PR} \cong \overline{QV}$	3	$\div$
4	$\overline{PX} \cong \overline{QX}$	4	Given
5	Draw $\overline{NX}$	5	2pt $\Rightarrow$ line or Aux
6	$\overline{NX} \cong \overline{NX}$	6	Ref
7	$\triangle NPX \cong \triangle NQX$	7	SSS
8	$\angle NPX \cong \angle NQX$	8	CPCTC
9	$\angle RPT$ supp of $\angle NPX$	9	st$\angle \Rightarrow$ supp$\angle$s
10	$\angle VQS$ supp of $\angle NQX$	10	st$\angle \Rightarrow$ supp$\angle$s
11	$\angle RPT \cong \angle VQS$	11	$\angle$s supp to $\cong \angle$s $\Rightarrow \cong \angle$s
12	$\angle R \cong \angle V$	12	Given
13	$\triangle RPT \cong \triangle VQS$	13	ASA
14	$\overline{QS} \cong \overline{PT}$	14	CPCTC
15	$\overline{XS} \cong \overline{XT}$	15	Subtract
16	$\triangle XST$ is isos.	16	2 $\cong$ sds $\Rightarrow$ isos $\triangle$

3.6

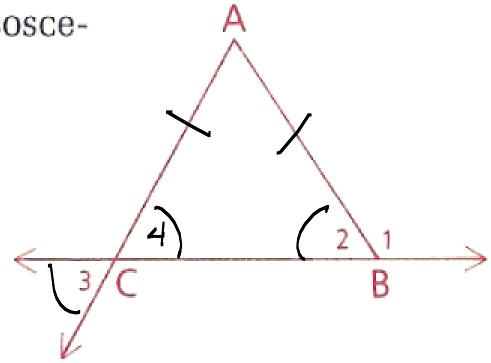
7 Given: $\overline{AD}$ and $\overline{CD}$ are legs of isosceles $\triangle ACD$.
B is the midpt. of $\overline{AC}$.
Prove: $\angle A \cong \angle C$



S	R
1. $\overline{AD}$ & $\overline{CD}$ legs isos $\triangle$	1. Given
2. $\overline{AD} \cong \overline{CD}$	2. isos $\triangle \Rightarrow 2 \cong$ sds
3. B mdpt AC	3. Given
4. $\overline{AB} \cong \overline{BC}$	4. mdpt $\Rightarrow \cong$ segs
5. Draw $\overline{DB}$	5. Aux
6. $\overline{DB} \cong \overline{DB}$	6. Ref
7. $\triangle ADB \cong \triangle CDB$	7. SSS (2 4 6)
8. $\angle A \cong \angle C$	8. CPCTC (7)

14 Given: $\overline{AB}$ and $\overline{AC}$ are the legs of isosceles $\triangle ABC$.
$m\angle 1 = 5x$,
$m\angle 3 = 2x + 12$

Find: $m\angle 2$



not a proof

$\overline{AB} \cong \overline{AC}$	isos $\triangle$ def
$AB = AC$	$\cong$ segs $\Rightarrow$ = meas
$\angle 4 = \angle 2$	base $\angle$s of isos $\triangle \cong$
$\angle 3 = \angle 4$	vert $\angle$s
$\angle 1$ supp $\angle 2$	st $\angle \Rightarrow$ supp $\angle$s
$\angle 1$ supp $\angle 3$	substitute

$5x + 2x + 12 = 180$
$7x = 168$
$x = 24$
$m\angle 1 = 5(20+4) = 120$
supp $\angle 1 = m\angle 2 = 60°$