A#29 ① p. 120-121 WE #1-11, 20-21, 23 and Mixed Review #1-2
② p. 114-115 Cumulative Review #14-22, 27-34, 45-46

Key

① p. 120-121 WE #1-11, 20-21, 23 and Mixed Review #1-2

For #1-6, $\triangle BIG \cong \triangle CAT$.

1. $\angle G \cong \boxed{\angle T}$
2. $\boxed{m\angle I} = m\angle A$
3. $BI = \boxed{CA}$
4. $\boxed{\overline{IG}} \cong \overline{AT}$

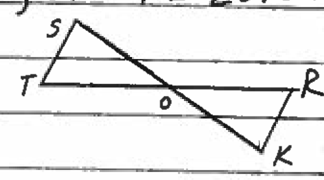
CPCTC (1-4)

5. $\triangle IGB \cong \boxed{\triangle ATC}$
6. $\boxed{\triangle BGI} \cong \triangle CTA$

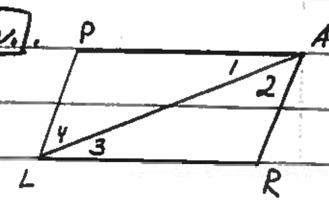
7. If $\triangle DEF \cong \triangle RST$, $m\angle D = 100^\circ$, $m\angle F = 40^\circ$, name 4 $\cong \angle$s.

① $m\angle D + m\angle E + m\angle F = 180^\circ$ [$\triangle$ Sum Thm]
$m\angle E = 40^\circ$
② $\angle F \cong \angle E$ [Def. of $\cong \angle$s]
③ $\angle E \cong \angle S$, $\angle F \cong \angle T$ [CPCTC]
④ $\angle E \cong \angle F \cong \angle S \cong \angle T$ [Trans. Prop. of $\cong$]

8. "Corresponding parts of congruent triangles are congruent" $\Leftrightarrow$ Def. of $\cong \triangle$s
9. $\triangle LXR \cong \triangle FNE$ [Given]
$\angle L \cong \angle F$, $\angle X \cong \angle N$, $\angle R \cong \angle E$, $\overline{LX} \cong \overline{FN}$, $\overline{XR} \cong \overline{NE}$, $\overline{LR} \cong \overline{FE}$ [CPCTC]

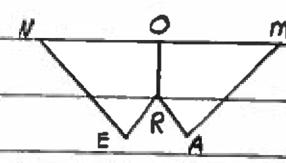


10. a. $\triangle STO \cong \boxed{\triangle KRO}$ [2 $\cong \triangle$s given]
b. $\angle S \cong \boxed{\angle K}$ because $\boxed{\text{CPCTC}}$.
c. $\overline{SO} \cong \boxed{\overline{KO}}$ because $\boxed{\text{CPCTC}}$.
Then point O is the midpoint of $\boxed{\overline{SK}}$. [Def. of midpoint]
d. $\angle T \cong \boxed{\angle R}$ because $\boxed{\text{CPCTC}}$.
Then $\overline{ST} \parallel \overline{RK}$ because $\boxed{\text{Alt. Int. } \angle\text{s Conv.}}$.



11. a. $\triangle PAL \cong \boxed{\triangle RLA}$ [2 $\cong \triangle$s given]
b. $\overline{PA} \cong \boxed{\overline{RL}}$ [CPCTC]
c. $\angle 1 \cong \boxed{\angle 3}$ [CPCTC]
Then $\overline{PA} \parallel \boxed{\overline{LR}}$ because $\boxed{\text{Alt. Int. } \angle\text{s Conv.}}$.
d. $\angle 2 \cong \boxed{\angle 4}$ [CPCTC]
Then $\boxed{\overline{PL} \parallel \overline{AR}}$ because $\boxed{\text{Alt. Int. } \angle\text{s Conv.}}$.

For #20-21



20. $NERO \cong \boxed{MARO}$ [2 $\cong$ quads given]
21. a. ① $\overline{NO} \cong \overline{MO}$ [CPCTC]
② O is the midpt of $\overline{NM}$ [Def. of midpt]
b. $\angle NOR \cong \angle MOR$ [CPCTC]
c. $\overline{RO} \perp \overline{NM}$ [2 lines form $\cong$ adj $\angle$s $\rightarrow \perp$ lines]

23. Does congruence of $\triangle$s have the Reflexive, Symmetric, and Transitive Properties?
Yes Yes Yes
All of these imply that the $\triangle$s still have the same size and shape.

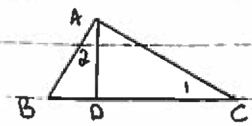
A#29 continued

Key

p. 121 Mixed Review #1+2

1. Given: $\overline{AD} \perp \overline{BC}$; $\overline{BA} \perp \overline{AC}$

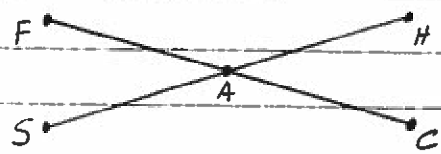
Prove: $\angle 1 \cong \angle 2$



Statements	Reasons
① $\overline{AD} \perp \overline{BC}$, $\overline{BA} \perp \overline{AC}$	① Given
② $\angle 2$ is comp. to $\angle B$; $\angle 1$ is comp. to $\angle B$	② The acute $\angle$s of a rt. Δ are comp.
③ $\angle 1 \cong \angle 2$	③ $\cong$ complements Thm

2. Given: $\overline{FC}$ and $\overline{SH}$ bisect each other at A; $FC = SH$

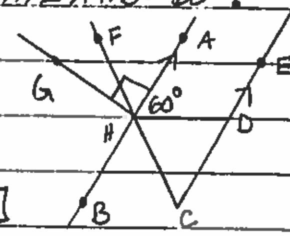
Prove: $SA = AC$



Statements	Reasons
① $\overline{FC}$ + $\overline{SH}$ bisect each other at A; $FC = SH$	① Given
② A is the midpt of $\overline{FC}$ and $\overline{SH}$	② Def. of Seg. bisector
③ $SA = \frac{1}{2} SH$, $AC = \frac{1}{2} FC$	③ Midpt. Thm
④ $SA = \frac{1}{2} FC$	④ Subst. Prop. of = (1→3)
⑤ $SA = AC$	⑤ Trans. Prop. of =

2 p. 114-115 Cumulative Review #14-22, 27-34, 45-46

For #14-22, $\overleftrightarrow{AB}$ bisects $\angle DHF$, $\overleftrightarrow{AB} \perp \overleftrightarrow{GH}$, $\overleftrightarrow{AB} \parallel \overleftrightarrow{CD}$, $m\angle AHD = 60°$.



14. $m\angle AHD = \frac{1}{2} m\angle FHD$ [$\angle$ bisector thm #1]

$\boxed{m\angle FHD = 120°}$

15. $\boxed{m\angle AHG = 90°}$ [Def. of $\perp$]

16. $m\angle FHA = m\angle AHD = 60°$ [$\angle$ bisector thm #1 / trans Prop of =]

$m\angle FHG + m\angle FHA = 90°$ [Ext. sides $\perp$ → adj. Comp. $\angle$s]

$\boxed{m\angle FHG = 30°}$

17. $\boxed{m\angle GHB = 90°}$ [Def. of $\perp$]

18. $m\angle BHC + m\angle GHB + m\angle FHG = 180°$ [$\angle$ Add Post]

$\boxed{m\angle BHC = 60°}$

19. $m\angle AHD + m\angle DHC + m\angle BHC = 180°$ [$\angle$ Add Post]

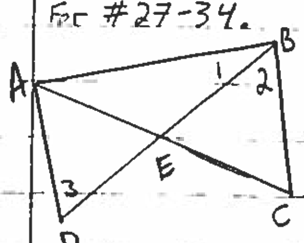
$\boxed{m\angle DHC = 60°}$

20. $\boxed{m\angle HDE = 120°}$ [S.S. Int. $\angle$s Thm]

21. $\boxed{m\angle HDC = 60°}$ [Alt. Int. $\angle$s Thm]

22. $\boxed{m\angle HCD = 60°}$ [Δ Sum Thm]

For #27-34.



27. $\angle AED \cong \angle BEC$ [Vert. $\angle$s Thm] 28. $AE + EC = AC$ [Seg. Add Post]

29. $m\angle 1 + m\angle 2 = m\angle ABC$ [$\angle$ Add Post]

30. If $\angle 2 \cong \angle 3$, then $\overline{AD} \parallel \overline{BC}$. [Alt. Int. $\angle$s Conv.]

31. $m\angle AEB = m\angle 2 + m\angle C$ [Ext. $\angle$ of a Δ thm]

32. If $\overline{DA} \perp \overline{AB}$, then $m\angle DAB = 90°$. [Def. of $\perp$]

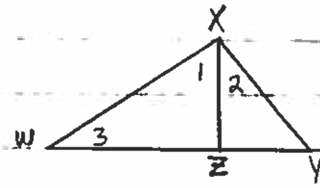
33. $m\angle 1 + m\angle 3 + m\angle DAB = 180°$ [Δ Sum Thm]

34. If $\angle ABC$ is a right $\angle$, then $\overline{AB} \perp \overline{BC}$. [Def. of $\perp$]

A#29 continued

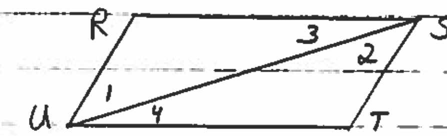
p. 115 #45-46

Key



45. Given: $\overline{WX} \perp \overline{XY}$; $\angle 1$ is comp. to $\angle 3$
Prove: $\angle 2 \cong \angle 3$

Statements	Reasons
① $\overline{WX} \perp \overline{XY}$; $\angle 1$ is comp. to $\angle 3$	① Given
② $\angle 1$ is comp. to $\angle 2$	② Ext. sides $\perp$ → adj. comp. $\angle$s
③ $\angle 2 \cong \angle 3$	③ $\cong$ Complements Thrm



46. Given: $\overline{RU} \parallel \overline{ST}$; $\angle R \cong \angle T$
Prove: $\overline{RS} \parallel \overline{UT}$

Statements	Reasons
① $\overline{RU} \parallel \overline{ST}$; $\angle R \cong \angle T$	① Given
② $\angle 1 \cong \angle 2$	② Alt. Int. $\angle$s Thrm
③ $\angle 3 \cong \angle 4$	③ 3rd $\angle$s Thrm
④ $\overline{RS} \parallel \overline{UT}$	④ Alt. Int. $\angle$s Converse

Note: 2 $\angle$s of one Δ are $\cong$ to 2 $\angle$s of another Δ!