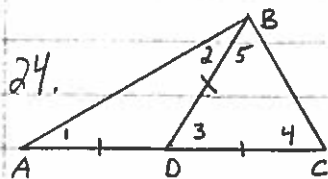A# 34 [Pt I] p. 138-139 #24-25, 27-29   [Key]

[Pt II] p. 142-145 CE # 11-13 / WE # 1-4, 11-15

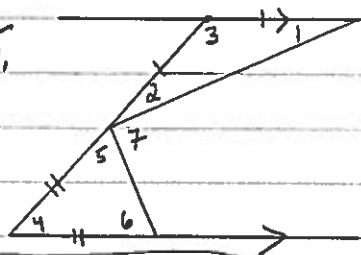[Pt I] p. 138-139 #24-25, 27-29   [Reason]

24.

a. $m\angle 1 = 35°$ [Given]   b. $m\angle 1 = K°$

$m\angle 2 = 35°$ [Base $\angle$s thm] $m\angle 2 = K°$

$m\angle 3 = 70°$ [Ext. $\angle$ of a $\triangle$ thm] $m\angle 3 = 2K°$

\# $m\angle 4 = 55°$ [Base $\angle$s thm/ $\triangle$ sum thm] \# $m\angle 4 = (90-K)°$

$m\angle 5 = 55°$ [Base $\angle$s Thm] $m\angle 5 = (90-K)°$

$\boxed{m\angle ABC = 90°}$ [$\angle$ Add Post] $\boxed{m\angle ABC = 90°}$

$\rightarrow m\angle ABC = m\angle 2 + m\angle 5$

\#
$\boxed{m\angle 4 = m\angle 5 \,[Base \angle s \, Thm]}$

$m\angle 4 + m\angle 5 + m\angle 3 = 180$ [$\triangle$ sum thm]

$2m\angle 4 + m\angle 3 = 180°$ [Subst Prop of =]

$m\angle 4 = \dfrac{180 - m\angle 3}{2}$ [Subtr. and ÷ Prop of =]

                                    [Reason]

25.

a. $m\angle 1 = 23°$ [Given]   b. $m\angle 1 = K°$

$m\angle 2 = 23°$ [Base $\angle$s Thm] $m\angle 2 = K°$

$m\angle 3 = 134°$ [$\triangle$ Sum Thm] $m\angle 3 = (180 - 2K)°$

$m\angle 4 = 46°$ [SS Int. $\angle$s Thm] $m\angle 4 = 2K°$

\# $m\angle 5 = 67°$ [Base $\angle$s thm / $\triangle$ Sum thm] \# $m\angle 5 = (90-K)°$

$m\angle 6 = 67°$ [Base $\angle$s Thm] $m\angle 6 = (90-K)°$

$\boxed{m\angle 7 = 90°}$ [$\angle$ Add Post] $\boxed{m\angle 7 = 90°}$

$\rightarrow m\angle 5 + m\angle 7 + m\angle 2 = 180°$

$\rightarrow m\angle 7 = 180 - m\angle 2 - m\angle 5$

\# $\boxed{m\angle 5 = m\angle 6 \,[Base \angle s Thm]}$

$m\angle 5 + m\angle 6 + m\angle 4 = 180$ [$\triangle$ sum Thm]

$2m\angle 5 + m\angle 4 = 180°$ [Subst. Prop of =]

$m\angle 5 = \dfrac{180 - m\angle 4}{2}$ [Subtr. and ÷ Prop. of =]

27. Given: Equiangular $\triangle ABC$, $AB = 4x-y$, $BC = 2x+3y$, $AC = 7$

① $AB = BC = AC$ [Equiangular → Equilateral]

② $4x - y = 7$ [Trans. Prop. of =]
   $2x + 3y = 7$

$\times 3 \rightarrow$ $\dfrac{12x + (3y) = 21}{14x = 28}$ $\rightarrow$ $2(2) + 3y = 7$
                                            $3y = 3$

$\boxed{x = 2}$ $\boxed{y = 1}$

28. Given: Equilateral $\triangle ABC$, $m\angle D = x+y$, $m\angle E = 2x - y$

① $m\angle D = m\angle E = 60°$ [Equilateral → 3 60° $\angle$s]
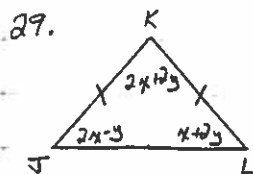
② $x + y = 60$ [Trans. Prop. of =]
   $2x - y = 60$ $\rightarrow$ $40 + y = 60$

$\dfrac{3x = 120}{\boxed{x = 40}}$ $\boxed{y = 20}$

P+I   p.139   WE # 29

29.

Given: $\overline{JK} \cong \overline{KL}$, $m\angle J = 2x-y$, $m\angle K = 2x+2y$, $m\angle L = x+2y$

① $2x-y = x+2y$ [Base ∠s Thm] ⟶ $x = 3y$

② $5x+3y = 180$ [Δ sum thm] ⟶ $5(3y)+3y = 180$

$18y = 180$ ⟶ $x = 3(10)$

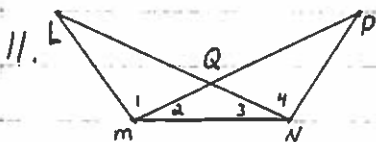$\boxed{y = 10}$ $\boxed{x = 30}$

P+II   p.142-145 CE #11-13 / WE #1-4, 11-15

10.

Not assigned... Bonus just for you!
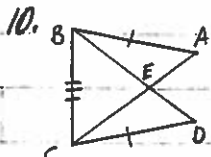
① $\overline{AB} \cong \overline{DC}$, $\overline{AC} \cong \overline{DB}$ [Given]

② $\overline{BC} \cong \overline{BC}$ [Refl. Prop. of ≅]

③ $\triangle ABC \cong \triangle DCB$ [SSS ≅ Post]

11.

① $\angle 2 \cong \angle 3$, $\angle 1 \cong \angle 4$ [Given]

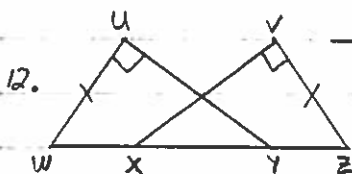② $m\angle 2 = m\angle 3$, $m\angle 1 = m\angle 4$ [Def. of ≅ ∠s]

③ $m\angle 1 + m\angle 2 = m\angle 3 + m\angle 4$ [Add Prop. of =]

④ $m\angle 1 + m\angle 2 = m\angle LMN$, $m\angle 3 + m\angle 4 = m\angle PNM$ [∠ Add Post]

⑤ $m\angle LMN = m\angle PNM / \angle LMN \cong \angle PNM$ [Trans Prop of = / Def. of ≅ seg]

⑥ $\overline{MN} \cong \overline{MN}$ [Refl. Prop. of ≅]

⑦ $\triangle LMN \cong \triangle PNM$ [ASA ≅ Post]

12.

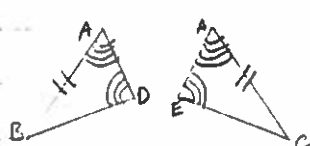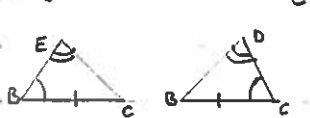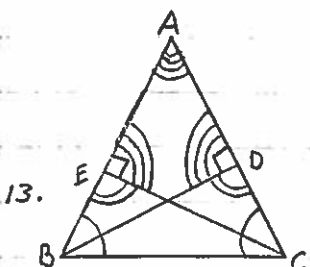① $\overline{WU} \cong \overline{ZV}$, $WX = YZ$, $\angle U$ and $\angle V$ are Rt ∠s [Given]

② $WY = WX + XY$, $ZX = YZ + XY$ [Seg. Add Post.]

③ $XY = XY$ [Refl. Prop. of =]

④ $WX + XY = YZ + XY$ [Add Prop of = (1+3)]

⑤ $WY = ZX / \overline{WY} \cong \overline{ZX}$ [Trans. Prop. of = / Def. of ≅ seg.]

⑥ $\triangle WUY \cong \triangle ZVX$ [HL ≅ Thm]

13.

① $\angle ABC \cong \angle ACB$, $\overline{AE} \perp \overline{EC}$, $\overline{AD} \perp \overline{DB}$ [Given]

② $\angle BEC, \angle CDB, \angle AEC, \angle ADB$ are Rt. ∠s [Def. of ⊥]

③ $\angle BEC \cong \angle CDB$, $\angle AEC \cong \angle ADB$ [Rt. ∠s thm]

④ $\overline{BC} \cong \overline{BC}$ [Refl. Prop. of ≅]

⑤ $\triangle BEC \cong \triangle CDB$ [AAS ≅ Thm]

⑥ $\overline{AB} \cong \overline{AC}$ [Base ∠s Thm]
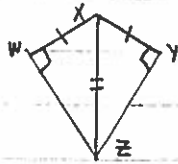
⑦ $\angle A \cong \angle A$ [Refl. Prop. of ≅]

⑧ $\triangle ABD \cong \triangle ACE$ [AAS ≅ Thm]

A#34 Continued

Key

Pt II p. 143-145 WE #1-4, 11-15

	statements	Reasons

1. Given: ∠W and ∠Y are rt. ∠s,
   $\overline{WX} \cong \overline{YX}$

   Prove: $\overline{WZ} \cong \overline{YZ}$

   ① ∠W and ∠Y are Rt ∠s — ① Given
   ② △XWZ + △XYZ are Rt △s — ② Def. of Rt. △
   ③ $\overline{WX} \cong \overline{YX}$ — ③ Given
   ④ $\overline{XZ} \cong \overline{XZ}$ — ④ Refl. Prop. of ≅
   ⑤ △XWZ ≅ △XYZ — ⑤ HL ≅ Thrm
   ⑥ $\overline{WZ} \cong \overline{YZ}$ — ⑥ CPCTC

2. Given: $\overline{KL} \perp \overline{LA}$; $\overline{FJ} \perp \overline{JA}$;
   $\overrightarrow{AR}$ bisects ∠LAJ

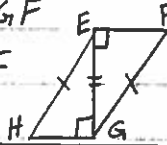   Prove: $\overline{LK} \cong \overline{JK}$
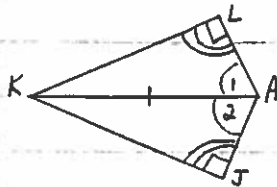
   ① $\overline{KL} \perp \overline{LA}$, $\overline{KJ} \perp \overline{JA}$, $\overrightarrow{AR}$ bisects ∠LAJ — ① Given
   ② ∠1 ≅ ∠2 — ② Def. of ∠ bisector
   ③ m∠L=90°, m∠J=90° — ③ Def. of ⊥
   ④ ∠L ≅ ∠J — ④ Def. of ≅ ∠s
   ⑤ $\overline{KA} \cong \overline{KA}$ — ⑤ Refl. Prop. of ≅
   ⑥ △LKA ≅ △JKA — ⑥ AAS ≅ Thrm
   ⑦ $\overline{LK} \cong \overline{JK}$ — ⑦ CPCTC

3. Given: $\overline{EF} \perp \overline{EG}$; $\overline{HG} \perp \overline{EG}$,
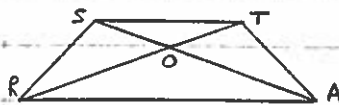 $\overline{EH} \cong \overline{GF}$

   Prove: ∠H ≅ ∠F

   ① $\overline{EF} \perp \overline{EG}$, $\overline{HG} \perp \overline{EG}$, $\overline{EH} \cong \overline{GF}$ — ① Given
   ② $\overline{EG} \cong \overline{EG}$ — ② Refl. Prop. of ≅
   ③ △HGE ≅ △FEG — ③ HL ≅ Thrm
   ④ ∠H ≅ ∠F — ④ CPCTC

4. Given: $\overline{RT} \cong \overline{AS}$, $\overline{RS} \cong \overline{AT}$

   Prove: ∠TSA ≅ ∠STR

   ① $\overline{RT} \cong \overline{AS}$, $\overline{RS} \cong \overline{AT}$ — ① Given
   ② $\overline{ST} \cong \overline{ST}$ — ② Refl. Prop. of ≅
   ③ △RST ≅ △ATS — ③ SSS ≅ Post
   ④ ∠TSA ≅ ∠STR — ④ CPCTC

11. ① ∠1 ≅ ∠2, ∠3 ≅ ∠4, $\overline{QR} \cong \overline{TS}$ [Given]
    ② $\overline{PR} \cong \overline{PS}$, $\overline{PQ} \cong \overline{PT}$ [Base ∠s Thm]
    ③ △QPR ≅ △TPS [SSS ≅ Post]

    For #11-13
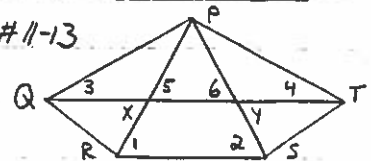
12. ① ∠3 ≅ ∠4, ∠5 ≅ ∠6 [Given]
    ② $\overline{PQ} \cong \overline{PT}$ [Base ∠s Thm]
    ③ ∠QXP is Supp. to ∠5 [∠Add Post]
       ∠TYP is Supp. to ∠6
    ④ ∠QXP ≅ ∠TYP [≅ Supp. Thrm]
    ⑤ △PQX ≅ △PTY [AAS ≅ Thrm]

13. ① ∠3 ≅ ∠4, ∠5 ≅ ∠6 [Given]
    ② $\overline{PQ} \cong \overline{PT}$ [Base ∠s Thm]
    ③ △QPY ≅ △TPX [AAS ≅ Thrm]

A #34 continued

Pt II p.145 WE # 14-15

14. Given: ∠R ≅ ∠T, $\overline{RS} \| \overline{QT}$
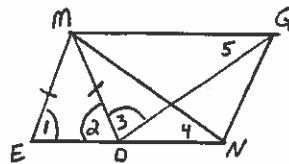Prove: $\overline{RS} \cong \overline{TQ}$
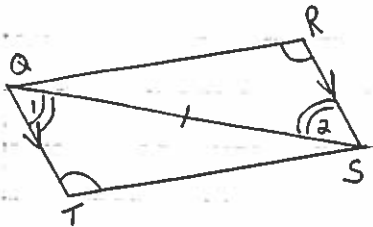
Statements	Reasons
① ∠R ≅ ∠T, $\overline{RS} \| \overline{QT}$	① Given
② Draw $\overline{QS}$	② Through any 2 pts ∃ exactly 1 line.
③ ∠1 ≅ ∠2	③ Alt. Int. ∠s Thm
④ $\overline{QS} \cong \overline{QS}$	④ Refl. Prop. of ≅
⑤ △SRQ ≅ △QTS	⑤ AAS ≅ Thm
⑥ $\overline{RS} \cong \overline{TQ}$	⑥ CPCTC

15. Given: ∠1 ≅ ∠2 ≅ ∠3, $\overline{EN} \cong \overline{DG}$
Prove: ∠4 ≅ ∠5

Statements	Reasons
① ∠1 ≅ ∠2 ≅ ∠3, $\overline{EN} \cong \overline{DG}$	① Given
② $\overline{ME} \cong \overline{MD}$	② Base ∠s Thm
③ △EMN ≅ △DMG	③ SAS ≅ Post
④ ∠4 ≅ ∠5	④ CPCTC