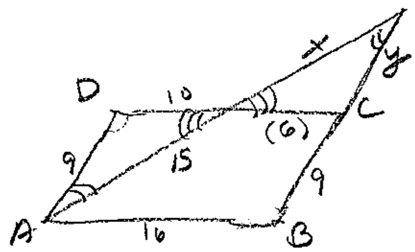
7.4

(18)



$\frac{6}{10} = \frac{3}{5} = \frac{x}{15}$

$45 = 5x$

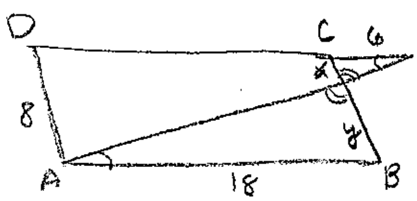
$\boxed{9 = x}$

$\frac{3}{5} = \frac{y}{9}$

$27 = 5y$

$\frac{27}{5} = \boxed{y = 5.4}$

(19)



$x + y = 8$

$y = 8 - x$

$\frac{6}{18} = \frac{1}{3} = \frac{x}{y}$

$\frac{1}{3} = \frac{x}{8-x}$

$8 - x = 3x$

$8 = 4x$

$\boxed{2 = x}$

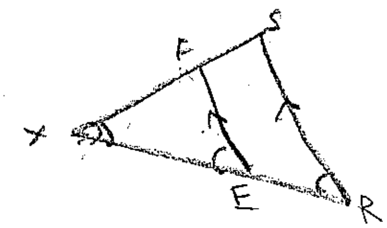
$2 + y = 8$

$\boxed{y = 6}$

(21) Given: $\overline{EF} \parallel \overline{RS}$

Prove: a) $\triangle FXE \sim \triangle SXR$

b) $\frac{EX}{SX} = \frac{EF}{RS}$

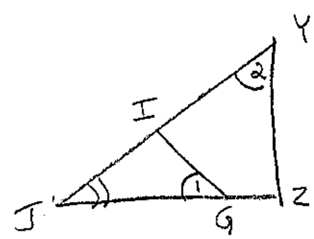


Statements	Reasons
1. $\overline{EF} \parallel \overline{RS}$	1. Given
2. $\angle X \cong \angle X$	2. Reflexive
3. $\angle FEX \cong \angle SRX$	3. $\parallel$ lines $\rightarrow$ corr. $\angle$s $\cong$
a) 4. $\triangle FXE \sim \triangle SXR$	4. AA sim. post.
b) 5. $\frac{FX}{SX} = \frac{EF}{RS}$	5. corr. sides sim. $\triangle$ prop.

(22) Given: $\angle 1 \cong \angle 2$

Prove: a) $\triangle JIG \sim \triangle JZY$

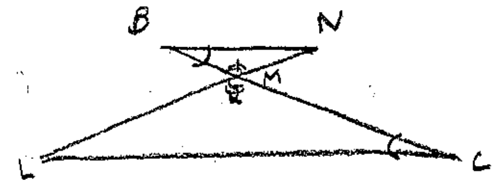
b) $\frac{JG}{JY} = \frac{GI}{YZ}$



Statements	Reasons
1. $\angle 1 \cong \angle 2$	1. Given
2. $\angle J \cong \angle J$	2. Reflexive
a) 3. $\triangle JIG \sim \triangle JZY$	3. AA Sim post
b) 4. $\frac{JG}{JY} = \frac{GI}{YZ}$	4. Corr. sides $\sim$ $\triangle$ prop.

(23) Given: $\angle B \cong \angle C$

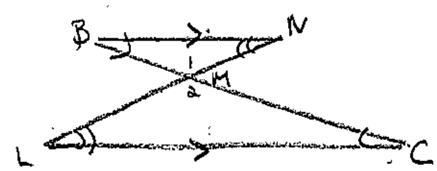
Prove: $NM \cdot CM = LM \cdot BM$



Statements	Reasons
1. $\angle B \cong \angle C$	1. Given
2. $\angle 1 \cong \angle 2$	2. Vert. $\angle^s \cong$
3. $\triangle BMN \sim \triangle CML$	3. AA Sim. post.
4. $\frac{NM}{LM} = \frac{BM}{CM}$	4. corr. sides $\sim \triangle$ prop.
5. $NM \cdot CM = LM \cdot BM$	5. Means - Extremes

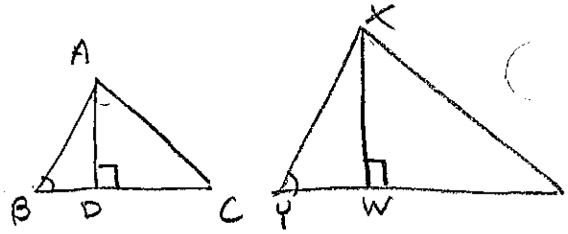
(24) Given: $\overline{BN} \parallel \overline{LC}$

Prove: $BN \cdot LM = CL \cdot NM$



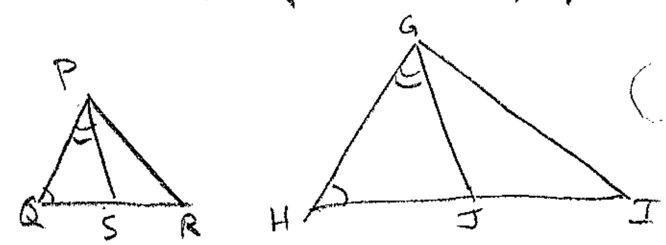
Statements	Reasons
1. $\overline{BN} \parallel \overline{LC}$	1. Given
2. $\angle N \cong \angle L$; $\angle B \cong \angle C$	2. $\parallel$ lines $\rightarrow$ alt. int. $\angle^s \cong$
3. $\triangle BNM \sim \triangle CLM$	3. AA Sim. post
4. $\frac{BN}{CL} = \frac{NM}{LM}$	4. corr. sides $\sim \triangle$ prop.
5. $BN \cdot LM = CL \cdot NM$	5. Means-Extremes

(25) Given: $\triangle ABC \sim \triangle XYZ$
$\overline{AD}$ + $\overline{XW}$ are altitudes
Prove: $\frac{AD}{XW} = \frac{AB}{XY}$



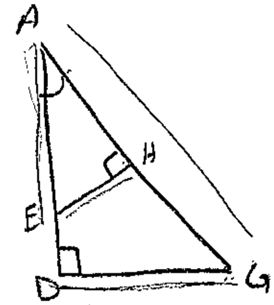
1. $\triangle ABC \sim \triangle XYZ$	1. Given
2. $\angle B \cong \angle Y$	2. corr. $\angle^s \sim \triangle^s \cong$
3. $\overline{AD}$ + $\overline{XW}$ are altitudes	3. Given
4. $\overline{AD} \perp \overline{BC}$; $\overline{XW} \perp \overline{YZ}$	4. def. altitude
5. $\angle ADB$ + $\angle XWY$ rt. $\angle^s$	5. def. $\perp$
6. $\angle ADB \cong \angle XWY$	6. all rt. $\angle^s \cong$
7. $\triangle ABD \sim \triangle XYW$	7. AA sim. post.
8. $\frac{AD}{XW} = \frac{AB}{XY}$	8. corr. parts $\sim \triangle^s$ prop.

(26) Given: $\triangle PQR \sim \triangle GHI$
$\overrightarrow{PS}$ + $\overrightarrow{GJ}$ are $\angle$ bis.
Prove: $\frac{PS}{GJ} = \frac{PQ}{GH}$



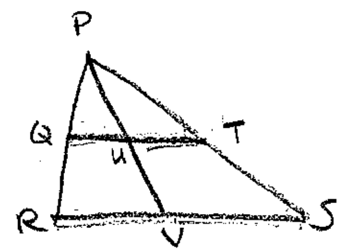
1. $\triangle PQR \sim \triangle GHI$	1. Given
2. $\angle Q \cong \angle H$; $\angle QPR \cong \angle HGJ$	2. corr. $\angle^s \sim \triangle^s \cong$
3. $m\angle QPR = m\angle HGJ$	3. def. $\cong$
4. $\overrightarrow{PS}$ + $\overrightarrow{GJ}$ are $\angle$ bis.	4. Given
5. $m\angle QPS = \frac{1}{2} m\angle QPR$; $m\angle HGJ = \frac{1}{2} m\angle HGI$	5. $\angle$ bis. thm.
6. $\frac{1}{2} m\angle QPR = \frac{1}{2} m\angle HGJ$	6. mult. prop. =
7. $m\angle QPS = m\angle HGJ$	7. subst.
8. $\angle QPS \cong \angle HGJ$	8. def. $\cong$
9. $\triangle QPS \sim \triangle HGJ$	9. AA sim. post.
10. $\frac{PS}{GJ} = \frac{PQ}{GH}$	10. corr. sides $\sim \triangle$ prop.

(27) Given: $\overline{AH} \perp \overline{EH}$
$\overline{AD} \perp \overline{DG}$
Prove: $AE \cdot DG = AG \cdot HE$



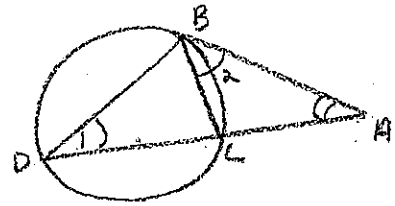
Statements	Reasons
1. $\overline{AH} \perp \overline{EH}$; $\overline{AD} \perp \overline{DG}$	1. Given
2. $\angle AHE$ + $\angle D$ rt. $\angle^s$	2. def. $\perp$
3. $\angle AHE \cong \angle D$	3. all rt. $\angle^s \cong$
4. $\angle A \cong \angle A$	4. Reflexive
5. $\Delta ADG \sim \Delta AHE$	5. AA sim. post.
6. $\frac{HE}{DG} = \frac{AE}{AG}$	6. corr. sides $\sim \Delta^s$ prop.
7. $AE \cdot DG = AG \cdot HE$	7. Means-Extremes

(28) Given: $\overline{QT} \parallel \overline{RS}$
Prove: $\frac{QU}{RV} = \frac{UT}{VS}$



Statements	Reasons
1. $\overline{QT} \parallel \overline{RS}$	1. Given
2. $\angle PQU \cong \angle R$; $\angle PUQ \cong \angle PVR$ $\angle PUT \cong \angle PVS$; $\angle PTU \cong \angle S$	2. $\parallel$ lines $\Rightarrow$ corr. $\angle^s \cong$
3. $\Delta PQU \sim \Delta PRV$; $\Delta PUT \sim \Delta PVS$	3. AA sim. post.
4. $\frac{QU}{RV} = \frac{PU}{PV}$; $\frac{UT}{VS} = \frac{PU}{PV}$	4. Corr. sides $\sim \Delta^s$ prop.
5. $\frac{QU}{RV} = \frac{UT}{VS}$	5. Subst.

(29) Given: $\angle 1 \cong \angle 2$
Prove: $(AB)^2 = AD \cdot AC$



Statements	Reasons
1. $\angle 1 \cong \angle 2$	1. Given
2. $\angle A \cong \angle A$	2. Reflexive
3. $\triangle ABC \sim \triangle ADB$	3. AA ~ post.
4. $\frac{AB}{AD} = \frac{AC}{AB}$	4. corr. sides ~ $\triangle$ in prop.
5. $(AB)^2 = AD \cdot AC$	5. Means-Extremes

(30) $15 + 20 = 35$

$\frac{15}{35} = \frac{18}{VC}$ $\quad 42 = VC$

$\frac{20}{35} = \frac{BB'}{49}$ $\quad 28 = BB'$

$\frac{15}{35} = \frac{24}{AB}$ $\quad 56 = AB$

(31) ① $\frac{10}{25} = \frac{A'B'}{20}$ $\quad 8 = A'B'$

② $\frac{8}{20} = \frac{A'C'}{16}$ $\quad 6.4 = A'C'$

③ $\frac{8}{20} = \frac{C'B'}{14}$ $\quad 5.6 = C'B'$

① ($\triangle VA'B' \sim \triangle VAB$ by AA ~ post.)
(2+3) ($\triangle ABC \sim \triangle A'B'C'$)

perimeter = 20