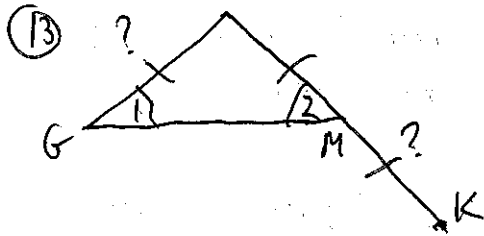


HW #35 Solutions (Proofs only)

OR: p. 137 # 13, 14, 21

GB: p. 131 # 13, 15.

p. 137

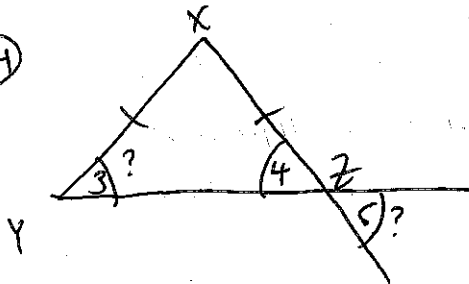


Given: M is the midpoint of \overline{JK}
 $\angle 1 \cong \angle 2$

Prove: $\overline{JG} \cong \overline{MK}$

Statements	Reasons
1. $\angle 1 \cong \angle 2$	1. Given.
2. $\overline{JM} \cong \overline{JM}$	2. If two angles of a triangle are congruent, then the sides opposite them are congruent. (1)
3. M is the midpoint of \overline{JK} .	3. Given.
4. $\overline{JM} \cong \overline{MK}$	4. Definition of midpoint. (3)
5. $\overline{JG} \cong \overline{MK}$	5. Transitive Property. (2, 4).

(14)

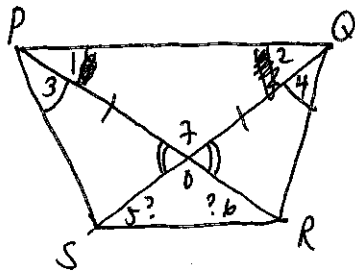


Given: $\overline{XY} \cong \overline{XZ}$

Prove: $\angle 3 \cong \angle 5$

Statements	Reasons
1. $\overline{XY} \cong \overline{XZ}$	1. Given.
2. $\angle 3 \cong \angle 4$	2. If the sides of a triangle are congruent, then the angles opposite them are congruent. (1)
3. $\angle 4 \cong \angle 5$	3. Vertical angles are congruent.
4. $\angle 3 \cong \angle 5$	4. Transitive Property. (2, 3).

(21)

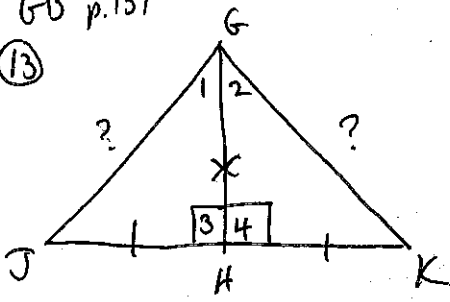


Given: $\overline{OP} \cong \overline{OQ}$
 $\angle 3 \cong \angle 4$

Prove: $\angle 5 \cong \angle 6$

Statements	Reasons
1. $\angle 3 \cong \angle 4$ ($a \cong a$)	1. Given.
2. $\overline{OP} \cong \overline{OQ}$ ($s \cong s$)	2. Given.
3. $\angle POS \cong \angle QOR$ ($a \cong a$)	3. Vertical angles are congruent.
4. $\triangle POS \cong \triangle QOR$	4. ASA Postulate (1, 2, 3).
5. $\overline{OS} \cong \overline{OR}$	5. Corresponding parts of congruent triangles are congruent. (4).
6. $\angle 5 \cong \angle 6$	6. If two sides of a triangle are congruent, then the angles opposite them are congruent. (5).

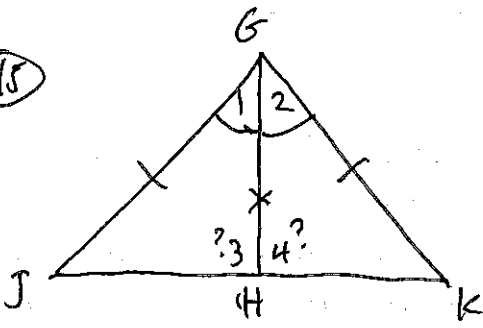
(13)



Given: $\overline{GH} \perp \overline{JK}$
 $\overline{JH} \cong \overline{KH}$
 Prove: $\overline{JG} \cong \overline{KG}$

Statements	Reasons
1. $\overline{JH} \cong \overline{KH}$ (s \cong s)	1. Given.
2. $\overline{GH} \perp \overline{JK}$	2. Given.
3. $\angle 3$ and $\angle 4$ are right angles.	3. Definition of perpendicular lines. (2).
4. $\angle 3 \cong \angle 4$ (a \cong a)	4. All right angles are congruent. (3).
5. $\overline{GH} \cong \overline{GH}$ (s \cong s)	5. Reflexive Property.
6. $\triangle JGH \cong \triangle KGH$	6. SAS Postulate. (1, 4, 5).
7. $\overline{JG} \cong \overline{KG}$	7. Corresponding parts of congruent triangles are congruent. (6).

(15)



Given: $\overline{JG} \cong \overline{KG}$
 \overline{GH} bisects $\angle JGK$.
 Prove: $\overline{GH} \perp \overline{JK}$

Statements	Reasons
1. $\overline{JG} \cong \overline{KG}$ (s \cong s)	1. Given.
2. \overline{GH} bisects $\angle JGK$	2. Given.
3. $\angle 1 \cong \angle 2$ (a \cong a)	3. Definition of angle bisector. (2).
4. $\overline{GH} \cong \overline{GH}$ (s \cong s)	4. Reflexive Property. 6
5. $\triangle JGH \cong \triangle KGH$	5. SAS Postulate (1, 3, 4).
6. $\angle 3 \cong \angle 4$	6. Corresponding parts of congruent triangles are congruent. (5).
7. $\overline{GH} \perp \overline{JK}$	7. If two lines intersect to form congruent adjacent angles, then the lines are perpendicular. (6).