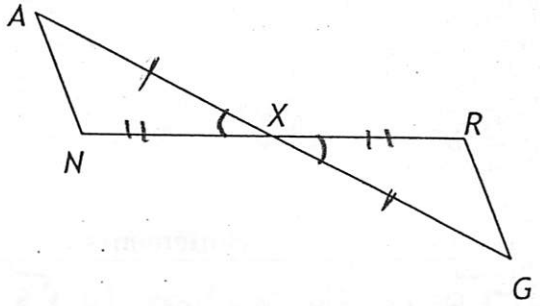
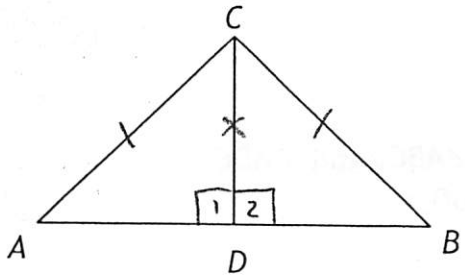
Proving Congruent Triangles

1. **Given:** X is midpoint of $\overline{AG}$ and $\overline{NR}$
Prove: $\triangle ANX \cong \triangle GRX$



Statements	Reasons
(1) X is midpt of $\overline{AG}$ and $\overline{NR}$	(1) Given
(2) $\overline{AX} \cong \overline{GX}$, $\overline{NX} \cong \overline{RX}$	(2) If midpt is given then 2 $\cong$ segments are formed.
(3) $\angle AXN \cong \angle GXR$	(3) Vertical $\angle$'s are $\cong$
(4) $\triangle ANX \cong \triangle GRX$	(4) SAS

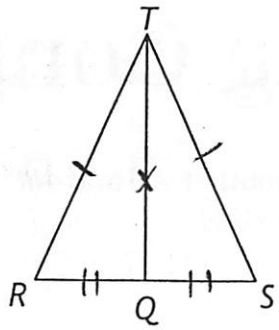
2. **Given:** $\overline{AC} \cong \overline{BC}$, $\overline{CD} \perp \overline{AB}$
Prove: $\triangle ACD \cong \triangle BCD$



Statements	Reasons
(1) $\overline{AC} \cong \overline{BC}$, $\overline{CD} \perp \overline{AB}$	(1) Given
(2) $\angle 1 \cong \angle 2$	(2) If segments are $\perp$ then $\cong$ 90° angles are formed
(3) $\overline{CD} \cong \overline{CD}$	(3) Reflexive Property
(4) $\triangle ACD \cong \triangle BCD$	(4) HL

3. **Given:** $\overline{TQ}$ is the median of $\overline{RS}$, $\overline{TR} \cong \overline{TS}$

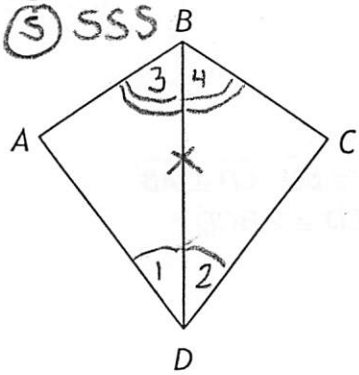
Prove: $\triangle TRQ \cong \triangle TSQ$



Statements	Reasons
① $\overline{TQ}$ is the median to $\overline{RS}$, $\overline{TR} \cong \overline{TS}$	① Given
② Q is midpt of $\overline{RS}$	② A median is drawn from the vertice to the midpt of the opposite side.
③ $\overline{RQ} \cong \overline{SQ}$	③ If midpt is given then 2 $\cong$ segments are formed.
④ $\overline{TQ} \cong \overline{TQ}$	④ Reflexive Prop
⑤ $\triangle TRQ \cong \triangle TSQ$	⑤ SSS

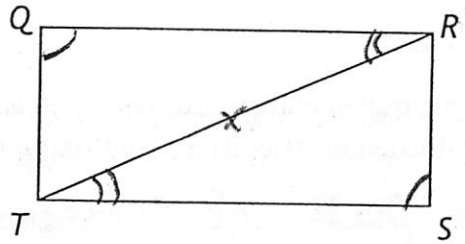
4. **Given:** $\overline{BD}$ bisects $\angle ABC$, and $\angle ADC$

Prove: $\triangle ABD \cong \triangle CBD$



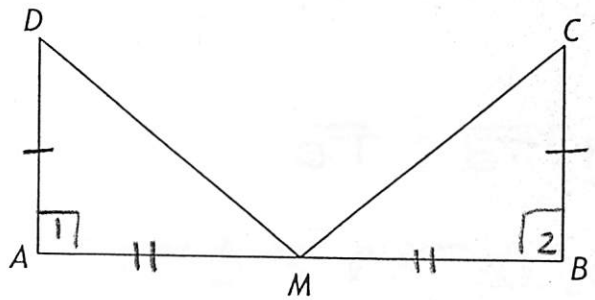
Statements	Reasons
① $\overline{BD}$ bisects $\angle ABC$ and $\angle ADC$	① Given
② $\angle 1 \cong \angle 2$ and $\angle 3 \cong \angle 4$	② If a segment bisects an $\angle$ then 2 $\cong$ $\angle$'s are formed.
③ $\overline{BD} \cong \overline{BD}$	③ Reflexive Prop.
④ $\triangle ABD \cong \triangle CBD$	④ ASA

5. **Given:** $\angle TQR \cong \angle RST$, $\overline{QR} \parallel \overline{TS}$
Prove: $\Delta QRT \cong \Delta STR$



Statements	Reasons
① $\angle TQR \cong \angle RST$, $\overline{QR} \parallel \overline{TS}$	① Given
② $\angle QRT \cong \angle STR$	② If ∥ lines are cut by a transversal then alt. int. ∠'s are ≅
③ $\overline{RT} \cong \overline{RT}$	③ Reflexive Prop.
④ $\Delta QRT \cong \Delta STR$	④ AAS

6. **Given:** $\overline{DA} \perp \overline{AB}$, $\overline{CB} \perp \overline{AB}$, $\overline{DA} \cong \overline{CB}$, M is the midpoint of $\overline{AB}$
Prove: $\Delta ADM \cong \Delta BCM$



Statements	Reasons
① $\overline{DA} \perp \overline{AB}$, $\overline{CB} \perp \overline{AB}$, $\overline{DA} \cong \overline{CB}$, M is the midpt of $\overline{AB}$	① Given
② $\angle 1 \cong \angle 2$	② If 2 segments are ⊥ then ≅ 90° ∠'s are formed.
③ $\overline{AM} \cong \overline{BM}$	③ If midpt is drawn then 2 ≅ segments are formed.
④ $\Delta ADM \cong \Delta BCM$	④ SAS

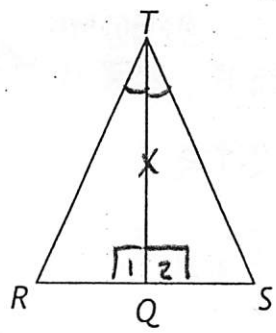
Introducing a new definition!

Since we are proving two triangles congruent, then it follows that their corresponding parts are congruent. We typically abbreviate this in a proof using **CPCTC** which stands for:

Congruent parts of congruent triangles are congruent

7. **Given:** $\overline{TQ}$ bisects $\angle RTS$, $\overline{TQ} \perp \overline{RS}$

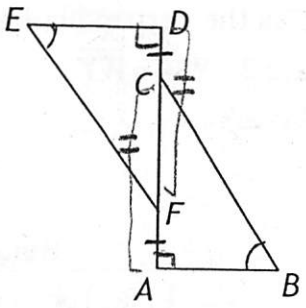
Prove: $\overline{RQ} \cong \overline{SQ}$



Statements	Reasons
(1) $\overline{TQ}$ bisects $\angle RTS$ $\overline{TQ} \perp \overline{RS}$	(1) Given
(2) $\angle RTQ \cong \angle STQ$	(2) If segment bisects an $\angle$ then 2 $\cong$ $\angle$'s are formed.
(3) $\angle 1 \cong \angle 2$	(3) If segments are $\perp$ then 2 $\cong$ 90° $\angle$'s are formed
(4) $\overline{TQ} \cong \overline{TQ}$	(4) Reflexive Prop.
(5) $\triangle TRQ \cong \triangle TSQ$	(5) ASA
(6) $\overline{RQ} \cong \overline{SQ}$	(6) CPCTC

8. **Given:** $\angle FED \cong \angle CBA, \overline{DC} \cong \overline{AF}, \overline{FD} \perp \overline{DE}, \overline{CA} \perp \overline{AB}$

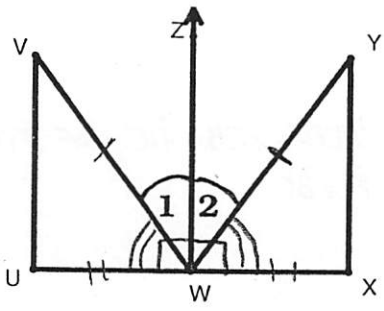
Prove: $\overline{EF} \cong \overline{BC}$



Statements	Reasons
(1) $\angle FED \cong \angle CBA$ $\overline{DC} \cong \overline{AF}$ $\overline{FD} \perp \overline{DE}$, $\overline{CA} \perp \overline{AB}$	(1) Given
(2) $\overline{CF} \cong \overline{CF}$	(2) Reflexive Prop.
(3) $\overline{DC} + \overline{CF} \cong \overline{AF} + \overline{CF}$	(3) Addition Prop of Equality
(4) $\overline{DF} \cong \overline{AC}$	(4) Segment Addition Postulate
(5) $\angle FDE \cong \angle CAB$	(5) If segments are $\perp$ then $\cong$ 90° $\angle$'s are formed
(6) $\triangle EDF \cong \triangle BAC$	(6) AAS
(7) $\overline{EF} \cong \overline{BC}$	(7) CPCTC

9. **Given:** $\overline{WZ}$ is the perpendicular bisector of $\overline{UX}$, $\angle 1 \cong \angle 2$, $\overline{WV} \cong \overline{WY}$

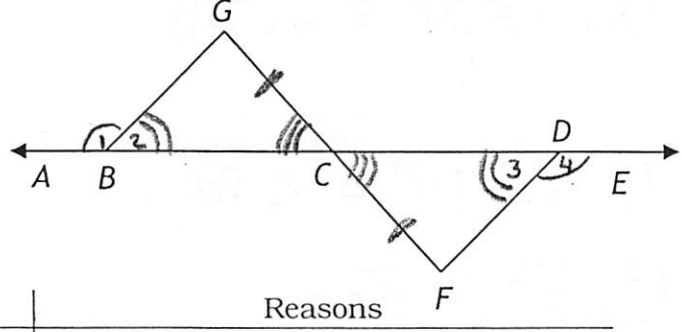
Prove: $\angle V \cong \angle Y$



Statements	Reasons
(1) $\overleftrightarrow{WZ}$ is $\perp$ bisector of $\overline{UX}$, $\angle 1 \cong \angle 2$, $\overline{WV} \cong \overline{WY}$	(1) Given
(2) $\overline{UW} \cong \overline{XW}$	(2) If seg. is $\perp$ bisector then 2 $\cong$ seg are formed
(3) $\angle ZWX \cong \angle ZWU$	(3) If seg is $\perp$ bisector then 2 $\cong$ 90° $\angle$'s are formed
(4) $\angle ZWU - \angle 1 \cong \angle ZWX - \angle 2$	(4) Subtraction Prop. of Equality
(5) $\angle VWU \cong \angle YWX$	(5) Angle Subtraction Postulate
(6) $\triangle VWU \cong \triangle YWX$	(6) SAS
(7) $\angle V \cong \angle Y$	(7) CPCTC

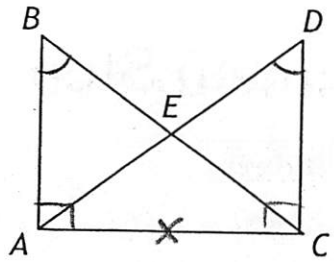
10. **Given:** $\angle ABG \cong \angle EDF$, $\overline{GF}$ bisects $\overline{BD}$

Prove: $\overline{GB} \cong \overline{FD}$



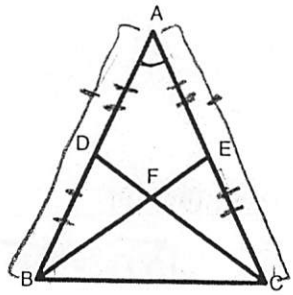
Statements	Reasons
(1) $\angle ABG \cong \angle EDF$, $\overline{GF}$ bisects $\overline{BD}$	(1) Given
(2) $\angle 1$ and $\angle 2$ are supp, $\angle 3$ and $\angle 4$ are supp	(2) Linear pairs of $\angle$'s are supplementary
(3) $\angle 2 \cong \angle 3$	(3) If $\angle$'s are supplements to $\cong$ $\angle$'s then those $\angle$'s are $\cong$
(4) $\overline{GC} \cong \overline{FC}$	(4) If a seg bisects another seg then 2 $\cong$ seg. are formed
(5) $\angle GCB \cong \angle FCD$	(5) Vertical $\angle$'s are $\cong$
(6) $\triangle GBC \cong \triangle FDC$	(6) AAS
(7) $\overline{GB} \cong \overline{FD}$	(7) CPCTC

11. **Given:** $\angle B \cong \angle D$, $\overline{AC} \perp \overline{BA}$, $\overline{DC} \perp \overline{AC}$
Prove: $\overline{AB} \cong \overline{CD}$



Statements	Reasons
① $\angle B \cong \angle D$ $\overline{AC} \perp \overline{BA}$, $\overline{DC} \perp \overline{AC}$	① Given
② $\angle BAC \cong \angle DCA$	② If 2 seg. are $\perp$ then $\cong$ 90° $\angle$'s are formed
③ $\overline{AC} \cong \overline{AC}$	③ Reflexive Prop.
④ $\triangle BAC \cong \triangle DCA$	④ AAS
⑤ $\overline{AB} \cong \overline{CD}$	⑤ CPCTC

12. **Given:** $\overline{AB} \cong \overline{AC}$, $\overline{CD}$ bisects $\overline{AB}$, $\overline{BE}$ bisects $\overline{AC}$
Prove: $\overline{CD} \cong \overline{BE}$



Statements	Reasons
① $\overline{AB} \cong \overline{AC}$, $\overline{CD}$ bisects $\overline{AB}$ $\overline{BE}$ bisects $\overline{AC}$	① Given
② $\overline{BD} \cong \overline{AD}$, $\overline{CE} \cong \overline{AE}$	② If seg bisects another seg then 2 $\cong$ segments are formed
③ $\overline{AD} \cong \overline{AE}$	③ If $\cong$ seg are bisected then all seg formed are $\cong$
④ $\angle A \cong \angle A$	④ Reflexive Prop.
⑤ $\triangle BAE \cong \triangle CAD$	⑤ SAS
⑥ $\overline{CD} \cong \overline{BE}$	⑥ CPCTC

Time to Step it Up a Notch!!

Isosceles Triangle Theorem

If 2 sides of a $\triangle$ are $\cong$ then the angles opposite these sides are $\cong$

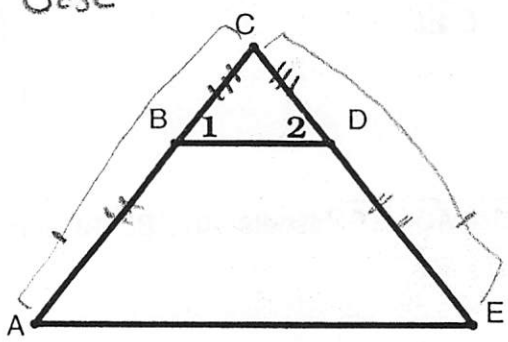
Isosceles Triangle Theorem - Corollary

(1) The bisector of the vertex $\angle$ of an isos $\triangle$ bisects the base

(2) The bisector of the vertex $\angle$ of an isos $\triangle$ is $\perp$ to the base

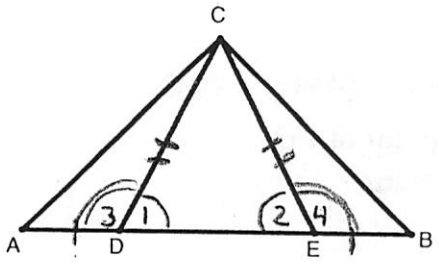
13. **Given:** $\overline{CA} \cong \overline{CE}$, $\overline{BA} \cong \overline{DE}$

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



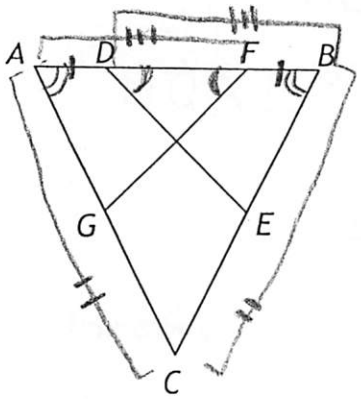
Statements	Reasons
(1) $\overline{CA} \cong \overline{CE}$, $\overline{BA} \cong \overline{DE}$	(1) Given
(2) $\overline{CA} - \overline{BA} \cong \overline{CE} - \overline{DE}$	(2) Subtraction Prop of Equality
(3) $\overline{CB} \cong \overline{CD}$	(3) Segment Subtraction Postulate
(4) $\angle 1 \cong \angle 2$	(4) If 2 sides of a $\triangle$ are $\cong$ then the $\angle$'s opp these sides are $\cong$

14. **Given:** $\overline{AD} \cong \overline{BE}$, $\overline{CD} \cong \overline{CE}$, $\overline{ADEB}$
Prove: $\overline{AC} \cong \overline{BC}$



Statements	Reasons
(1) $\overline{AD} \cong \overline{BE}$, $\overline{CD} \cong \overline{CE}$, $\overline{ADEB}$	(1) Given
(2) $\angle 1 \cong \angle 2$	(2) If 2 sides of $\triangle$ are $\cong$ then $\angle$'s opp sides are $\cong$
(3) $\angle 1$ and $\angle 3$ are supp $\angle 2$ and $\angle 4$ are supp.	(3) Linear pairs are supplementary
(4) $\angle 3 \cong \angle 4$	(4) If $\angle$'s are supplements to $\cong$ $\angle$'s then those $\angle$'s are $\cong$
(5) $\triangle CAD \cong \triangle CBE$	(5) SAS
(6) $\overline{AC} \cong \overline{BC}$	(6) CPCTC

Given: $\overline{AD} \cong \overline{FB}$, $\angle BDE \cong \angle AFG$ $\overline{AC} \cong \overline{BC}$
Prove: $\triangle AFG \cong \triangle BDE$

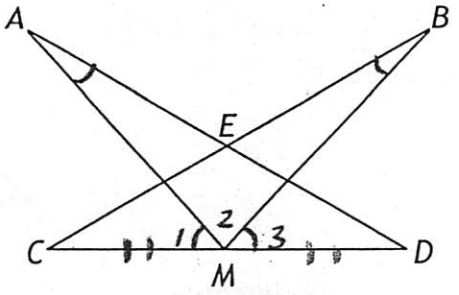


Statements	Reasons
(1) $\overline{AD} \cong \overline{FB}$, $\angle BDE \cong \angle AFG$, $\overline{AC} \cong \overline{BC}$	(1) Given
(2) $\angle B \cong \angle A$	(2) If 2 sides of $\triangle$ are $\cong$ then $\angle$'s opp sides are $\cong$
(3) $\overline{DF} \cong \overline{DF}$	(3) Reflexive Prop.
(4) $\overline{AD} + \overline{DF} \cong \overline{BF} + \overline{DF}$	(4) Addition Prop of Equality
(5) $\overline{AF} \cong \overline{BD}$	(5) Segment Addition Prop.
(6) $\triangle AFG \cong \triangle BDE$	(6) ASA

16. **Given:** $\angle MAD \cong \angle MBC$, $\angle AMC \cong \angle BMD$

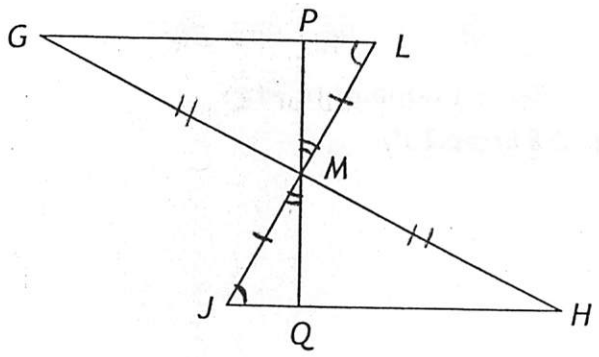
M is the midpoint of $\overline{DC}$

Prove: $\triangle CED$ is isosceles



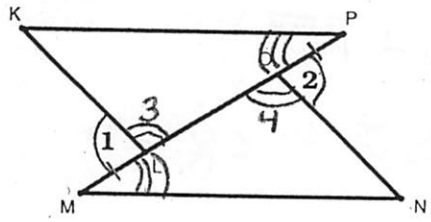
Statements	Reasons
(1) $\angle MAD \cong \angle MBC$, $\angle AMC \cong \angle BMD$ M is the midpt of DC	(1) Given
(2) $\angle AMB \cong \angle AMB$	(2) Reflexive Prop
(3) $\angle 1 + \angle 2 \cong \angle 3 + \angle 2$	(3) Addition Prop of Equality
(4) $\angle BMC \cong \angle AMD$	(4) Angle Addition Prop
(5) $\overline{CM} \cong \overline{DM}$	(5) If midpt is given then 2 $\cong$ segments are formed
(6) $\triangle BCM \cong \triangle ADM$	(6) AAS
(7) $\angle C \cong \angle D$	(7) CPCTC
(8) $\triangle CED$ is isosceles	(8) If the base $\angle$'s of a $\triangle$ are $\cong$ then the $\triangle$ is isos

17. **Given:** $\overline{GH}$ and $\overline{JL}$ bisect each other
Prove: $\Delta JQM \cong \Delta LPM$



Statements	Reasons
① $\overline{GH}$ and $\overline{JL}$ bisect each other	① Given
② $\overline{GM} \cong \overline{HM}$ and $\overline{LM} \cong \overline{JM}$	② If a segment is bisected then 2 $\cong$ segments are formed
③ $\angle GML \cong \angle HMJ$	③ Vertical $\angle$'s are $\cong$
④ $\Delta GML \cong \Delta HMJ$	④ SAS
⑤ $\angle L \cong \angle J$	⑤ CPCTC
⑥ $\angle PML \cong \angle QMJ$	⑥ Vertical $\angle$'s are $\cong$
⑦ $\Delta JQM \cong \Delta LPM$	⑦ ASA

18. **Given:** $\overline{KP} \parallel \overline{MN}$, $\overline{ML} \cong \overline{PO}$, $\angle 1 \cong \angle 2$
Prove: $\Delta MON \cong \Delta PLK$

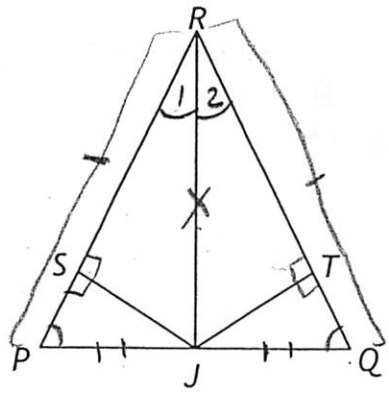


Statements	Reasons
① $\overline{KP} \parallel \overline{MN}$ $\overline{ML} \cong \overline{PO}$ $\angle 1 \cong \angle 2$	① Given
② $\angle KPM \cong \angle NMO$	② If $\parallel$ lines are cut by a transversal then alt. int. are $\cong$
③ $\overline{LO} \cong \overline{LO}$	③ Reflexive Prop.
④ $\overline{ML} + \overline{LO} \cong \overline{PO} + \overline{LO}$	④ Addition Prop of Equality
⑤ $\overline{MO} \cong \overline{PL}$	⑤ Segment Addition Postulate
⑥ $\angle 1$ and $\angle 3$ are supp $\angle 2$ and $\angle 4$ are supp	⑥ Linear pairs of $\angle$'s are supp.
⑦ $\angle 3 \cong \angle 4$	⑦ If $\angle$'s are supplements of $\cong$ $\angle$'s then those $\angle$'s are $\cong$
⑧ $\Delta MON \cong \Delta PLK$	⑧ ASA

19. **Given:** $\overline{SJ} \perp \overline{PR}$, $\overline{TJ} \perp \overline{RQ}$, $\overline{RP} \cong \overline{RQ}$

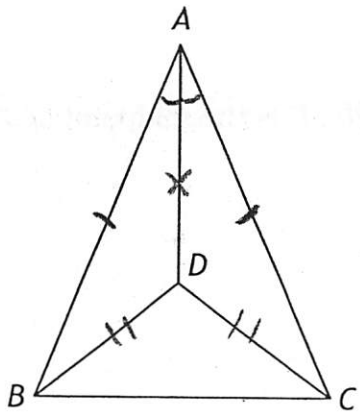
J is the midpoint of $\overline{PQ}$

Prove: $\triangle SJR \cong \triangle TJR$



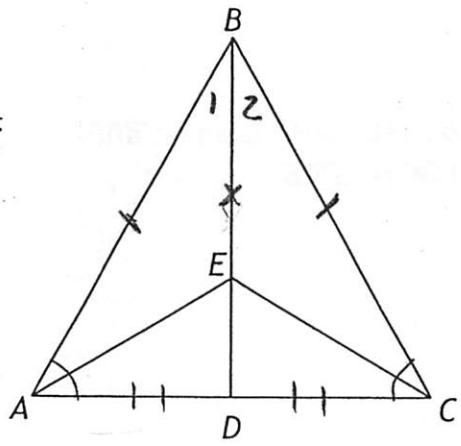
Statements	Reasons
(1) $\overline{SJ} \perp \overline{PR}$, $\overline{TJ} \perp \overline{RQ}$, $\overline{RP} \cong \overline{RQ}$, J is the midpt of $\overline{PQ}$	(1) Given
(2) $\angle P \cong \angle Q$	(2) If 2 sides of a $\triangle$ are $\cong$ then the $\angle$'s opp those sides are $\cong$
(3) $\overline{PJ} \cong \overline{QJ}$	(3) If midpt is given then 2 $\cong$ segments are formed.
(4) $\triangle PRJ \cong \triangle QRJ$	(4) SAS
(5) $\angle 1 \cong \angle 2$	(5) CPCTC
(6) $\overline{RJ} \cong \overline{RJ}$	(6) Reflexive Prop.
(7) $\angle RSJ \cong \angle RTJ$	(7) If 2 seg are $\perp$ then 2 $\cong$ 90° $\angle$'s are formed
(8) $\triangle SJR \cong \triangle TJR$	(8) AAS

20. **Given:** $\overline{AB} \cong \overline{AC}$, $\overline{AD}$ bisects $\angle BAC$
Prove: $\angle DBC \cong \angle DCB$



Statements	Reasons
(1) $\overline{AB} \cong \overline{AC}$ $\overline{AD}$ bisects $\angle BAC$	(1) Given
(2) $\angle BAD \cong \angle CAD$	(2) If seg bisects an $\angle$ then 2 $\cong$ $\angle$'s are formed
(3) $\overline{AD} \cong \overline{AD}$	(3) Reflexive Property
(4) $\triangle ABD \cong \triangle ACD$	(4) SAS
(5) $\overline{DB} \cong \overline{DC}$	(5) CPCTC
(6) $\angle DBC \cong \angle DCB$	(6) If 2 sides of a $\triangle$ are $\cong$ then the angles opposite these sides are $\cong$

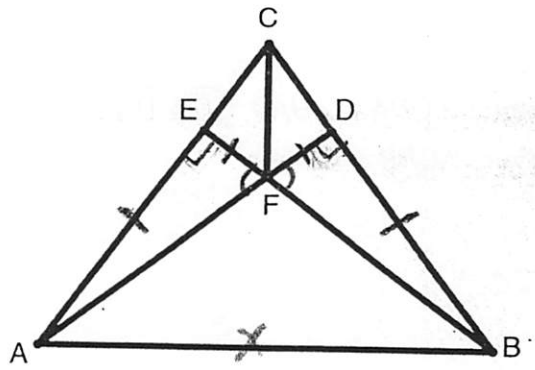
21. **Given:** $\angle BAD \cong \angle BCD$, D is the midpoint of $\overline{AC}$
Prove: $\overline{AE} \cong \overline{CE}$



Statements	Reasons
(1) $\angle BAD \cong \angle BCD$ D is midpt of $\overline{AC}$	(1) Given
(2) $\overline{BA} \cong \overline{BC}$	(2) If 2 $\angle$'s of a $\triangle$ are $\cong$ then the sides opp those $\angle$'s are $\cong$
(3) $\overline{AD} \cong \overline{CD}$	(3) If a midpt is given then 2 $\cong$ segments are formed.
(4) $\triangle BAD \cong \triangle BCD$	(4) SAS
(5) $\angle 1 \cong \angle 2$	(5) CPCTC
(6) $\overline{BE} \cong \overline{BE}$	(6) Reflexive Prop.
(7) $\triangle ABE \cong \triangle CBE$	(7) SAS
(8) $\overline{AE} \cong \overline{CE}$	(8) CPCTC

22. **Given:** $\overline{BE} \perp \overline{AC}$, $\overline{AD} \perp \overline{BC}$, $\overline{EF} \cong \overline{DF}$

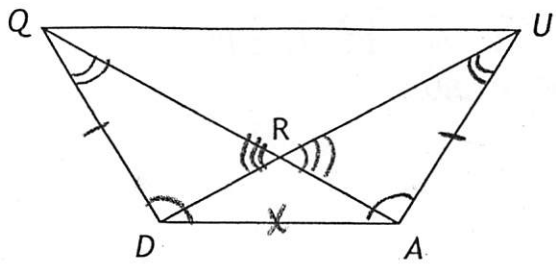
Prove: $\triangle AEB \cong \triangle BDA$



Statements	Reasons
(1) $\overline{BE} \perp \overline{AC}$ $\overline{AD} \perp \overline{BC}$ $\overline{EF} \cong \overline{DF}$	(1) Given
(2) $\angle AEF \cong \angle BDF$	(2) If segments are $\perp$ then $\cong$ 90° $\angle$'s are formed
(3) $\angle EFA \cong \angle DFA$	(3) Vertical $\angle$'s are $\cong$
(4) $\triangle AEF \cong \triangle BDF$	(4) ASA
(5) $\overline{AE} \cong \overline{BD}$	(5) CPCTC
(6) $\overline{AB} \cong \overline{AB}$	(6) Reflexive Prop.
(7) $\triangle AEB \cong \triangle BDA$	(7) HL

23. **Given:** $\angle QDA \cong \angle UAD$, $\overline{QD} \cong \overline{UA}$

Prove: $\Delta QDR \cong \Delta UAR$

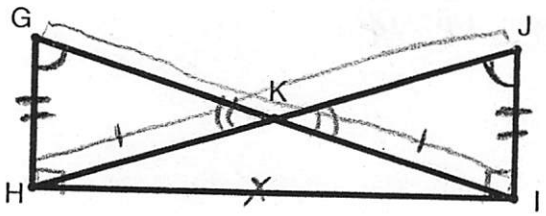


Statements	Reasons
(1) $\angle QDA \cong \angle UAD$ $\overline{QD} \cong \overline{UA}$	(1) Given
(2) $\overline{DA} \cong \overline{DA}$	(2) Reflexive Property
(3) $\triangle QDA \cong \triangle UAD$	(3) SAS
(4) $\angle DQA \cong \angle AUD$	(4) CPCTC
(5) $\angle QRD \cong \angle URA$	(5) Vertical $\angle$'s are $\cong$
(6) $\triangle QDR \cong \triangle UAR$	(6) AAS

24. **Given:** $\overline{GI} \cong \overline{JH}, \overline{GH} \perp \overline{HI}, \overline{JI} \perp \overline{HI}$

Prove: ~~[illegible]~~

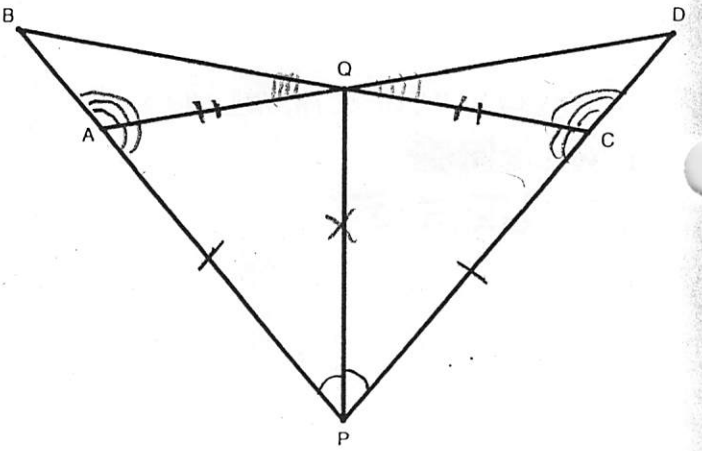
$\overline{GK} \cong \overline{JK}$



Statements	Reasons
(1) $\overline{GI} \cong \overline{JH}$ $\overline{GH} \perp \overline{HI}$, $\overline{JI} \perp \overline{HI}$	(1) Given
(2) $\angle GHI \cong \angle JIH$	(2) If segments are $\perp$ then $\cong$ 90° $\angle$'s are formed.
(3) $\overline{HI} \cong \overline{HI}$	(3) Reflexive Prop.
(4) $\triangle GHI \cong \triangle JIH$	(4) HL
(5) $\overline{GH} \cong \overline{JI}$, $\angle G \cong \angle J$	(5) CPCTC
(6) $\angle GKH \cong \angle JKI$	(6) Vertical $\angle$'s are $\cong$
(7) $\triangle GKH \cong \triangle JKI$	(7) AAS
(8) $\overline{GK} \cong \overline{JK}$	(8) CPCTC

25. **Given:** $\angle BPQ \cong \angle DPQ$, $\overline{AP} \cong \overline{CP}$

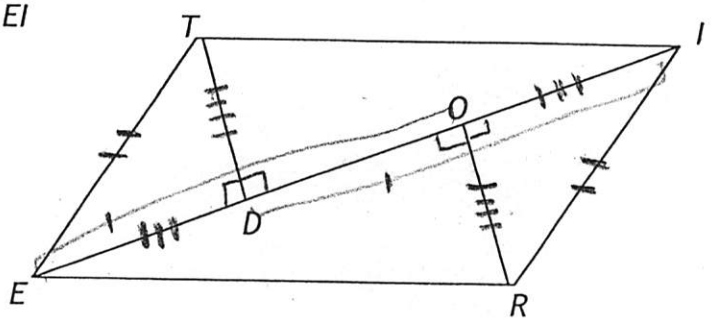
Prove: $\overline{QB} \cong \overline{QD}$



Statements	Reasons
(1) $\angle BPQ \cong \angle DPQ$ $\overline{AP} \cong \overline{CP}$	(1) Given
(2) $\overline{QP} \cong \overline{QP}$	(2) Reflexive Prop.
(3) $\triangle QAP \cong \triangle QCP$	(3) SAS
(4) $\overline{QA} \cong \overline{QC}$	(4) CPCTC
(5) $\angle PAQ \cong \angle PCQ$	(5) CPCTC
(6) $\angle PAQ$ and $\angle BAQ$ are supp $\angle PCQ$ and $\angle DCQ$ are supp	(6) Linear pairs of $\angle$'s are supp.
(7) $\angle BAQ \cong \angle DCQ$	(7) If $\angle$'s are supplements to $\cong$ $\angle$'s then those $\angle$'s are $\cong$
(8) $\angle BQA \cong \angle DQC$	(8) Vertical $\angle$'s are $\cong$
(9) $\triangle BAQ \cong \triangle DCQ$	(9) ASA
(10) $\overline{QB} \cong \overline{QD}$	(10) CPCTC

26. **Given:** $\overline{EO} \cong \overline{ID}$, $\overline{ET} \cong \overline{IR}$, $\overline{TD} \perp \overline{EI}$, $\overline{RO} \perp \overline{EI}$

Prove: $\overline{TI} \parallel \overline{RE}$



Statements	Reasons
(1) $\overline{EO} \cong \overline{ID}$ $\overline{ET} \cong \overline{IR}$ $\overline{TD} \perp \overline{EI}$ $\overline{RO} \perp \overline{EI}$	(1) Given
(2) $\overline{DO} \cong \overline{DO}$	(2) Reflexive Prop
(3) $\underline{\overline{EO} - \overline{DO}} \cong \underline{\overline{ED} - \overline{DO}}$	(3) Subtraction Prop of Equality
(4) $\overline{ED} \cong \overline{IO}$	(4) Segment Subtraction Prop
(5) $\angle TDE \cong \angle ROI$	(5) If 2 seg are $\perp$ then $\cong$ 90° $\angle$'s are formed.
(6) $\triangle TDE \cong \triangle ROI$	(6) HL
(7) $\overline{TD} \cong \overline{RO}$	(7) CPCTC
(8) $\angle TDI \cong \angle ROE$	(8) If 2 seg are $\perp$ then $\cong$ 90° $\angle$'s are formed
(9) $\triangle EOR \cong \triangle IDT$	(9) SAS
(10) $\angle OER \cong \angle DIT$	(10) CPCTC
(11) $\overline{TI} \parallel \overline{RE}$	(11) If lines are cut by a transversal and alt. int $\angle$'s are $\cong$ then the lines are $\parallel$