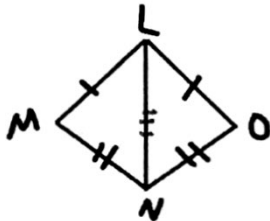


Name: _____ Date: _____

Proofs – Proving Triangles Congruent

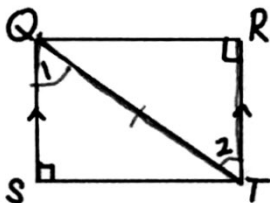
Matching: Use the choices listed at the bottom in the box for problems #1 – 4

Problem 1:



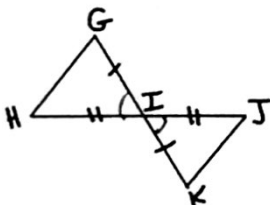
| Statement | Reason |
|--|-----------------------|
| 1. $\overline{LM} \cong \overline{LO}$ | 1. Given |
| 2. $\overline{MN} \cong \overline{ON}$ | 2. Given |
| 3. $\overline{LN} \cong \overline{LN}$ | 3. Reflexive Property |
| 4. $\triangle LMN \cong \triangle LON$ | 4. SSS |

Problem 2:



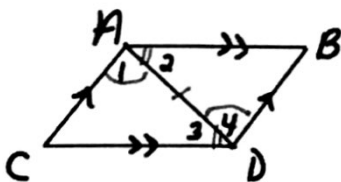
| Statement | Reason |
|--|-------------------------------------|
| 1. $\overline{QS} \parallel \overline{RT}$ | 1. Given |
| 2. $\angle R \cong \angle S$ | 2. Given |
| 3. $\angle 1 \cong \angle 2$ | 3. Alt. Int. \angle s are \cong |
| 4. $\overline{QT} \cong \overline{QT}$ | 4. Reflexive Property |
| 5. $\triangle QST \cong \triangle TRQ$ | 5. AAS congruence |

Problem 3:



| Statement | Reason |
|--|------------------------------------|
| 1. $\overline{GI} \cong \overline{KI}$ | 1. Given |
| 2. $\overline{HI} \cong \overline{JI}$ | 2. Given |
| 3. $\angle GIH \cong \angle KIJ$ | 3. Vertical \angle s are \cong |
| 4. $\triangle GIH \cong \triangle KIJ$ | 4. SAS |

Problem 4:



| Statement | Reason |
|---|-------------------------------------|
| 1. $\overline{AC} \parallel \overline{BD}, \overline{AB} \parallel \overline{CD}$ | 1. Given |
| 2. $\angle 1 \cong \angle 4, \angle 2 \cong \angle 3$ | 2. Alt. Int. \angle s are \cong |
| 3. $\overline{AD} \cong \overline{AD}$ | 3. Reflexive Prop. |
| 4. $\triangle ADC \cong \triangle DAB$ | 4. ASA |

Choices for problems #1 – 4 (some will be used more than once):

- AAS
- ASA
- SAS
- SSS

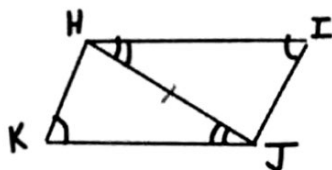
Alternate Interior Angles are \cong

Reflexive Property

Vertical Angles are \cong

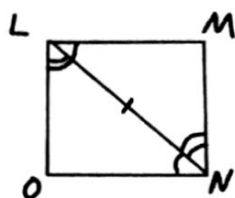
Fill in the blank proofs:

Problem 5:



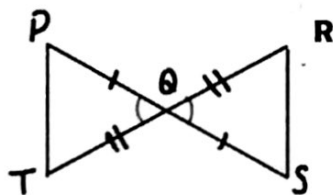
| Statement | Reason |
|--|-----------------------|
| 1. $\angle I \cong \angle K$ | 1. Given |
| 2. $\angle IHJ \cong \angle KJH$ | 2. Given |
| 3. $\overline{HJ} \cong \overline{JH}$ | 3. Reflexive Property |
| 4. $\triangle HJK \cong \triangle JHI$ | 4. AAS \cong |

Problem 6:



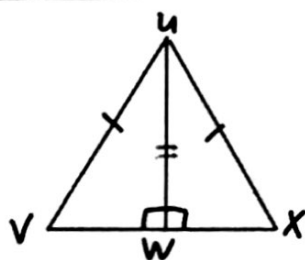
| Statement | Reason |
|--|-------------------------------|
| 1. $\angle MLN \cong \angle ONL$ | 1. Given |
| 2. $\angle OLN \cong \angle MNL$ | 2. Given |
| 3. $\overline{LN} \cong \overline{LN}$ | 3. Reflexive Property (Given) |
| 4. $\triangle LNO \cong \triangle NLM$ | 4. ASA \cong |

Problem 7:



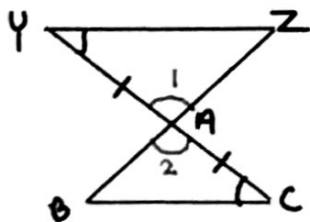
| Statement | Reason |
|--|------------------------------------|
| 1. $\overline{PQ} \cong \overline{QS}$ | 1. Given |
| 2. $\overline{QT} \cong \overline{QR}$ | 2. Given |
| 3. $\angle PQT \cong \angle RQS$ | 3. Vertical \angle s are \cong |
| 4. $\triangle PQT \cong \triangle RQS$ | 4. SAS \cong |

Problem 8:



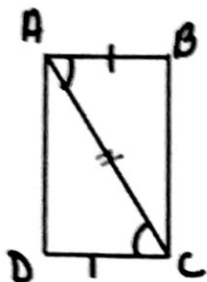
| Statement | Reason |
|--|-----------------------|
| 1. $\overline{UV} \cong \overline{UX}$ | 1. Given |
| 2. $\angle VWU \cong \angle XWU$ | 2. Given |
| 3. $\overline{UW} \cong \overline{UW}$ | 3. Reflexive Property |
| 4. $\triangle UWV \cong \triangle UWX$ | 4. HL \cong |

Problem 9:



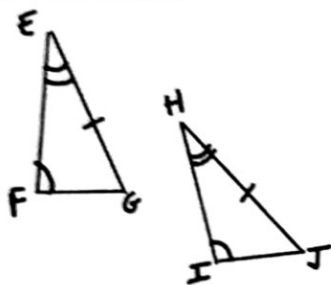
| Statement | Reason |
|--|------------------------------------|
| 1. $\angle Y \cong \angle C$ | 1. Given |
| 2. $\overline{YA} \cong \overline{CA}$ | 2. Given |
| 3. $\angle 1 \cong \angle 2$ | 3. Vertical \angle s are \cong |
| 4. $\triangle YZA \cong \triangle CBA$ | 4. ASA \cong |

Problem 10:



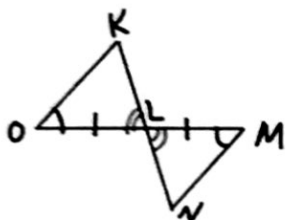
| Statement | Reason |
|--|--------------------|
| 1. $\angle BAC \cong \angle DCA$ | 1. Given |
| 2. $\overline{AB} \cong \overline{CD}$ | 2. Given |
| 3. $\overline{AC} \cong \overline{AC}$ | 3. Reflexive Prop. |
| 4. $\triangle ABC \cong \triangle CDA$ | 4. SAS \cong |

Problem 11:



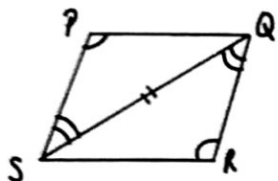
| Statement | Reason |
|--|----------------------------|
| 1. $\angle F \cong \angle I$ | 1. Given |
| 2. $\angle E \cong \angle H$ | 2. Given |
| 3. $\overline{EG} \cong \overline{HI}$ | 3. Given |
| 4. $\triangle EFG \cong \triangle HIJ$ | 4. AAS \cong (or SAA) |

Problem 12:



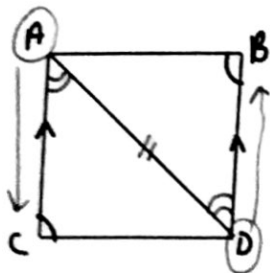
| Statement | Reason |
|--|------------------------|
| 1. $\angle O \cong \angle M$ | 1. Given |
| 2. $\overline{OL} \cong \overline{LM}$ | 2. Given |
| 3. $\angle KLO \cong \angle NLM$ | 3. Vertical \angle s |
| 4. $\triangle KLO \cong \triangle NLM$ | 4. ASA \cong |
| 5. $\angle K \cong \angle N$ | 5. CPCTC |

Problem 13:



| Statement | Reason |
|--|----------------|
| 1. $\angle P \cong \angle R$ | 1. Given |
| 2. $\overline{PS} \cong \overline{RQ}$ | 2. Given |
| 3. $\overline{QS} \cong \overline{QS}$ | 3. Reflexive |
| 4. $\triangle PQS \cong \triangle RSQ$ | 4. AAS \cong |

Problem 14:



| Statement | Reason |
|--|----------------------------|
| 1. $\overline{AC} \parallel \overline{BD}$ | 1. Given |
| 2. $\angle C \cong \angle B$ | 2. Given |
| 3. $\angle CAD \cong \angle BDA$ | 3. Alt. Int. \angle s |
| 4. $\overline{AD} \cong \overline{AD}$ | 4. Reflexive Prop. |
| 5. $\triangle ACD \cong \triangle DBA$ | 5. AAS \cong (or SAA) |