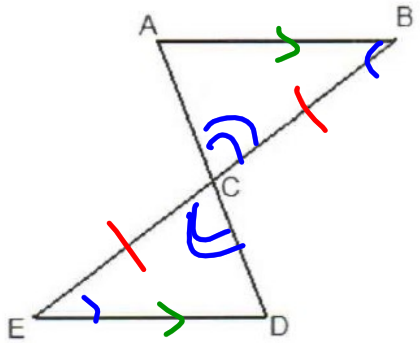
Name_____ Date_____ Block____

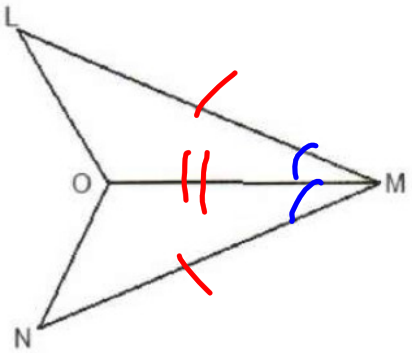
# Congruent Triangles Proofs Practice

Given: $\overline{AB}$ bisects $\overline{BE}$
$\overline{AB} \parallel \overline{DE}$
Prove: $\triangle ABC \cong \triangle DEC$



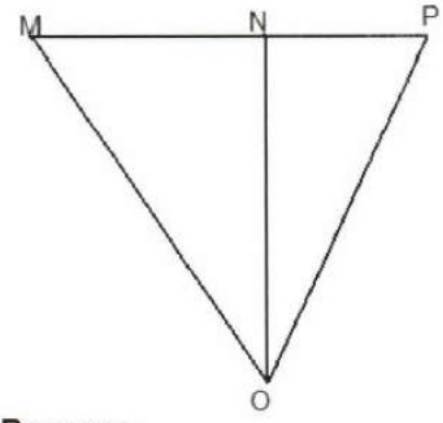

| Statements | Reasons |
|---|---|
| 1. $\overline{AD}$ bisects $\overline{BE}$ | 1. Given |
| 2. $\overline{AB} \parallel \overline{DE}$ | 2. Given |
| 3. $\angle B \cong \angle E$ | 3. Alt. Int. $\angle$ Theorem |
| 4. $\angle ACB \cong \angle DCE$ | 4. Vertical $\angle$ Theorem |
| 5. $\overline{BC} \cong \overline{EC}$ | 5. Definition of Bisect |
| 6. $\triangle ABC \cong \triangle DEC$ | 6. ASA |

Given: $\overline{OM}$ bisects $\angle LMN$
$\overline{LM} \cong \overline{NM}$
Prove: $\triangle MOL \cong \triangle MON$



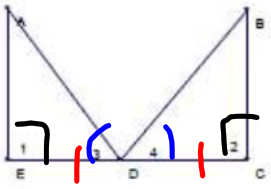

| Statements | Reasons |
|---|---|
| 1. $\overline{OM}$ bisects $\angle LMN$ | 1. Given |
| 2. $\overline{LM} \cong \overline{NM}$ | 2. Given |
| 3. $\angle LMO \cong \angle NMO$ | 3. Def. of Bisect |
| 4. $\overline{OM} \cong \overline{OM}$ | 4. Reflexive |
| 5. $\triangle MOL \cong \triangle MON$ | 5. SAS |

Given: $\overline{MO} \cong \overline{PO}$
$\overline{NO}$ bisects $\overline{MP}$
Prove: $\triangle MNO \cong \triangle PNO$




| Statements | Reasons |
|---|---|
| 1. $\overline{MO} \cong \overline{PO}$ | 1. |
| 2. $\overline{NO}$ bisects $\overline{MP}$ | 2. |
| 3. $\overline{MN} \cong \overline{PN}$ | 3. |
| 4. $\overline{NO} \cong \overline{NO}$ | 4. |
| 5. $\triangle MNO \cong \triangle PNO$ | 5. |

**Given:** $\overline{AE} \perp \overline{ED}$
$\overline{BC} \perp \overline{CD}$
**D is the midpoint of** $\overline{EC}$.
$\angle 3 \cong \angle 4$
**Prove:** $\triangle AED \cong \triangle BCD$




| | |
|---|---|
| $\overline{AE} \perp \overline{ED}$ | Given |
| $\overline{BC} \perp \overline{CD}$ | Given |
| D is m.p. $\overline{EC}$ | Given |
| $\angle 3 \cong \angle 4$ | Given |
| $\overline{ED} \cong \overline{DC}$ | Def. of m.p. |
| $\triangle AED \cong \triangle BCD$ | ASA |

**Given:** $\overline{AC} \cong \overline{CB}$
$\overline{CD}$ **Bisects** $\overline{AB}$
**Prove:** $\triangle ADC \cong \triangle BDC$