Name: ______________________________

Date: ______________________________

Class: ______________________________

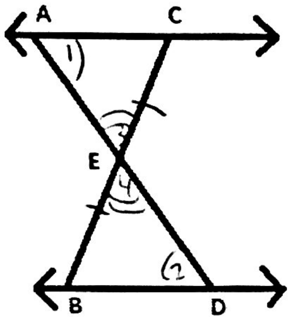
Geometry

Unit 8

HW 8-1

Using the given information and the diagram write a proof that shows the "Prove" statement is true.

1)



Given: $\overleftrightarrow{AC} \parallel \overleftrightarrow{BD}$

$\overline{AD}$ bisects $\overline{CB}$

Prove: $\triangle$ AEC $\cong$ $\triangle$ DEB

$\overline{AC} \parallel \overline{BD}$ → given

∠1 ≅ ∠2 → alt int ∠'s ≅ when lines ∥

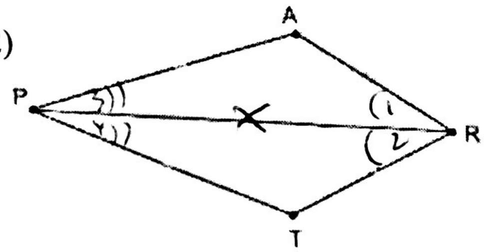
$\overline{AD}$ bisects $\overline{CB}$ → given

$\overline{CE} \cong \overline{BE}$ → bisector creates 2 ≅ parts

∠3 ≅ ∠4 → vert ∠'s ≅

△AEC ≅ △DEB → AAS

2)



Given: $\overline{PR}$ bisects <ART

$\overline{PR}$ bisects <APT

Prove: $\triangle$ PAR $\cong$ $\triangle$ PTR

$\overline{PR}$ bisects ∠ART → given

∠1 ≅ ∠2 → bisector creates 2 ≅ parts

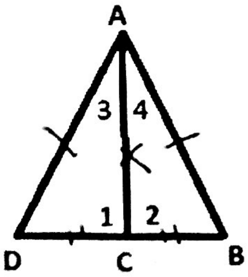
$\overline{PR}$ bisects ∠APT → given

∠3 ≅ ∠4 → bisector creates 2 ≅ parts

$\overline{PR} \cong \overline{PR}$ → anything ≅ to itself

△PAR ≅ △PTR → ASA

3)



Given: $\triangle$ ABD is isos with <A as vertex

$\overline{DC} \cong \overline{CB}$

Prove: $\Delta ADC \cong \Delta ABC$

△ABD is isos w/ ∠A as vertex → given

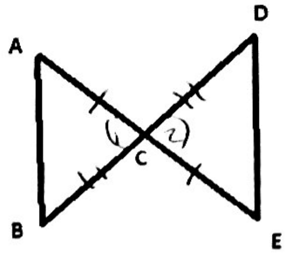
$\overline{AD} \cong \overline{AB}$ → isos △ has ≅ legs

$\overline{AC} \cong \overline{AC}$ → anything ≅ to itself

$\overline{DC} \cong \overline{CB}$ → given

△ADC ≅ △ABC → SSS

4)



Given: $\overline{BD}$ bisects $\overline{AE}$

$\overline{AE}$ bisects $\overline{BD}$

Prove: $\triangle$ ACB $\cong$ $\triangle$ ECD

$\overline{BD}$ bisects $\overline{AE}$ → given

$\overline{AC} \cong \overline{CE}$ → bisector creates 2 $\cong$ parts

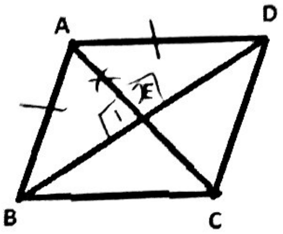
$\overline{AE}$ bisects $\overline{BD}$ → given

$\overline{BC} \cong \overline{CD}$ → bisector creates 2 $\cong$ parts

$\angle 1 \cong \angle 2$ → vert $\angle$s $\cong$

$\triangle ACB \cong \triangle ECD$ → SAS

5)



Given: ABCD is a rhombus

Prove: $\triangle$ AEB $\cong$ $\triangle$ AED

ABCD is a rhombus → given

$m\angle 1 = 90°$
$m\angle 2 = 90°$ → $\perp$ creates rt $\angle$'s

$\angle 1 \cong \angle 2$ → Both $90°$

$\overline{AD} \cong \overline{AB}$ → all sides of a rhombus are $\cong$

$\overline{AE} \cong \overline{AE}$ → anything $\cong$ to itself

$\triangle AEB \cong \triangle AED$ → HL