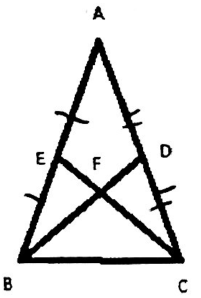
Name: ___________________________
Date: ___________________________
Class: ___________________________

Geometry
Unit 8
HW 8-2

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

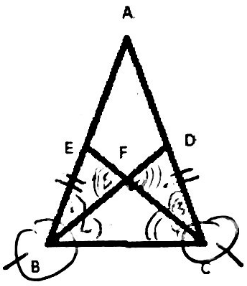
1)



Given: $\overline{CE}$ and $\overline{BD}$ are medians
$\triangle$ ACB is isos with <A as vertex
Prove: $\overline{EB} \cong \overline{AD}$

$\overline{CE}$ and $\overline{BD}$ are medians → given
$\overline{AE} \cong \overline{EB}$, $\overline{AD} \cong \overline{DC}$ → median cuts opp side in 2 ≅ parts
$\triangle ACB$ is isos w/ ∠A as vertex → given
$\overline{AB} \cong \overline{AC}$ → isos △ has 2 ≅ legs
$\overline{EB} \cong \overline{AD}$ → Both are ½ of ≅ sides

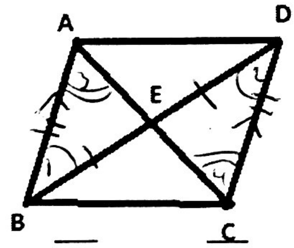
2)



Given: $\triangle$ ACB is isos with <A as vertex
$\overline{CE}$ and $\overline{BD}$ are < bisectors
$\overline{EB} \cong \overline{CD}$
Prove: $\triangle$ EFB $\cong$ $\triangle$ DFC

$\triangle AcB$ is isos w/ ∠A as vertex → given
∠ABC ≅ ∠ACB → base ∠s of isos △ ≅
$\overline{CE}$ and $\overline{BD}$ are ∠ bisectors → given
∠1 ≅ ∠2, ∠3 ≅ ∠4 → bisector creates 2 ≅ parts
∠1 ≅ ∠3 → Both are ½ of ≅ ∠s
$\overline{EB} \cong \overline{CD}$ → given
∠5 ≅ ∠6 → vert ∠s ≅
$\triangle EFB \cong \triangle DFC$ → AAS

3)

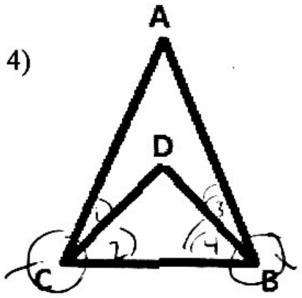


Given: $\overline{AC}$ bisects $\overline{BD}$
$\overline{AB} \| \overline{CD}$
Prove: ABCD is a ▱

↓
opp sides ∥
opp sides ≅
etc

$\overline{AC}$ bisects $\overline{BD}$ → given
$\overline{BE} \cong \overline{ED}$ → bisector creates 2 ≅ part
$\overline{AB} \| \overline{CD}$ → given
∠1 ≅ ∠2, ∠3 ≅ ∠4 → alt int ∠s ≅ when lines ∥
$\triangle ABE \cong \triangle CDE$ → AAS
$\overline{AB} \cong \overline{CD}$ → CPCTC
ABCD is a ▱ → it has 1 set of opp ∥/≅ sides

4)



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

$\overline{CD}$ and $\overline{BD}$ are < bisectors

Prove: $\triangle$ DCB is isos with <D as vertex

base $\angle$'s $\cong$? legs $\cong$

$\triangle ACB$ is isos w/ $\angle A$ as vertex $\rightarrow$ given

$\angle ACB \cong \angle ABC \rightarrow$ base $\angle$'s $\cong$ in isos $\triangle$

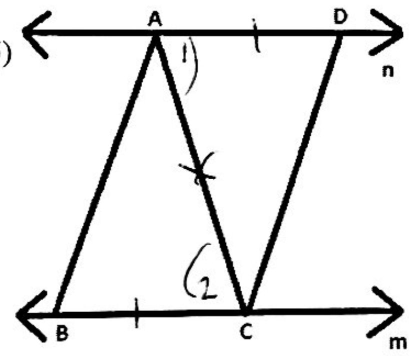
$\overline{CD}$ + $\overline{BD}$ are $\angle$ bisectors $\rightarrow$ given

$\angle 1 \cong \angle 2$, $\angle 3 \cong \angle 4$ $\rightarrow$ bisectors create 2 $\cong$ parts

$\angle 2 \cong \angle 4 \rightarrow$ Both are 1/2 of $\cong$ $\angle$'s

$\triangle DCB$ is isos w $\angle D$ as vertex $\rightarrow$ it has 2 $\cong \angle$'s so it's isos.

5)



Given: $\overleftrightarrow{n} \parallel \overleftrightarrow{m}$

$\overline{BC} \cong \overline{AD}$

Prove: $\triangle$ ABC $\cong$ $\triangle$ CDA

$\overleftrightarrow{n} \parallel \overleftrightarrow{m} \rightarrow$ given

$\angle 1 \cong \angle 2 \rightarrow$ alt int $\angle$'s $\cong$ when lines $\parallel$

$\overline{BC} \cong \overline{AD} \rightarrow$ given

$\overline{AC} \cong \overline{AC} \rightarrow$ anything $\cong$ to itself

$\triangle ABC \cong \triangle CDA \rightarrow$ SAS