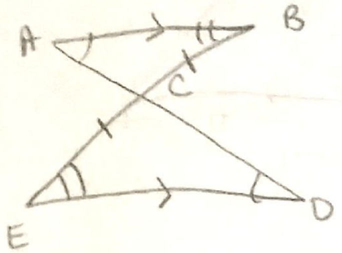
#17 Given: $\overline{AB} \parallel \overline{DE}$
$\overline{AD}$ bisects $\overline{BE}$

Prove $\triangle ABC \cong \triangle DEC$

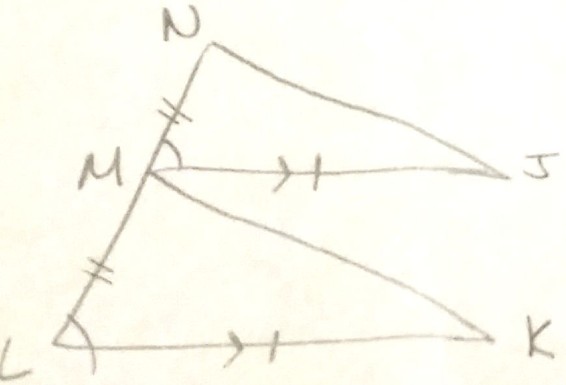


Statements	Reasons
① $\overline{AB} \parallel \overline{DE}$, $\overline{AD}$ bisects $\overline{BE}$	① Given
② $\angle A \cong \angle D$, $\angle B \cong \angle E$	② If lines are $\parallel$, then alt. interior ∠'s are ≅.
③ $\overline{EC} \cong \overline{CB}$	③ If a segment bisects a segment, then it divides it into 2 ≅ segments.
④ $\triangle ABC \cong \triangle DEC$	④ AAS (2,2,3)

* You can also prove this by vertical ∠'s so AAS or ASA.

#18 Given: $\overline{MJ} \parallel \overline{LK}$
$\overline{MJ} \cong \overline{LK}$
M is the MP of $\overline{LN}$

Prove: $\angle J \cong \angle K$



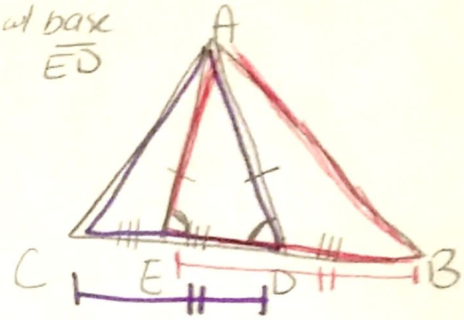
Statements	Reasons
① $\overline{MJ} \parallel \overline{LK}$, $\overline{MJ} \cong \overline{LK}$, M is the MP. of $\overline{LN}$	① Given
② $\overline{LM} \cong \overline{MN}$	② If a pt is the midpoint, then it divides the segment into 2 ≅ segments.
③ $\angle NMJ \cong \angle MLK$	③ If segments are $\parallel$, then corresponding ∠'s are ≅
④ $\triangle NMJ \cong \triangle MLK$	④ SAS
⑤ $\angle J \cong \angle K$	⑤ CPCTC

#22 Given: $\triangle AED$ is an isosceles $\triangle$ w/ base $\overline{ED}$

E is the MP of $\overline{CD}$;

D is the MP of $\overline{EB}$

Prove: $\overline{AC} \cong \overline{AB}$



Statements	Reasons
(1) $\triangle AED$ is an isosceles $\triangle$ w/ base $\overline{ED}$; E is the M.P of $\overline{CD}$; D is the MP of $\overline{EB}$	(1) Given
(2) $\overline{AE} \cong \overline{AD}$	(2) If a $\triangle$ is an isosceles $\triangle$, Then at least 2 sides are $\cong$.
(3) $\angle AED \cong \angle ADE$	(3) If 2 sides of a $\triangle$ are $\cong$, then the opposite $\angle$'s are $\cong$.
(4) $\overline{CE} \cong \overline{ED}$; $\overline{ED} \cong \overline{DB}$	(4) If a pt is the M.P., then it divides the segment into 2 $\cong$ segments
(5) $\overline{CD} \cong \overline{EB}$	(5) If 2 $\cong$ segments are added to congruent segments, then the sums are $\cong$
(6) $\triangle ACD \cong \triangle ABE$	(6) SAS
(7) $\overline{AC} \cong \overline{AB}$	(7) CPCTC

☆ You can also prove this by showing the outer $\triangle$'s are $\cong$.