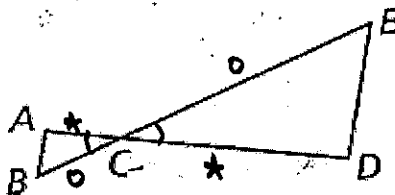


Proofs with SAS~ and SSS~

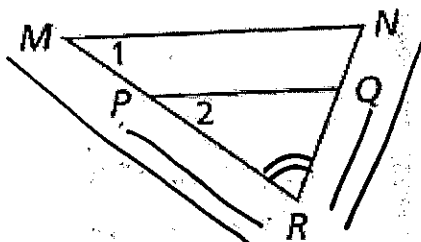
Examples:

1. Given: $CD = 3AC$ and $CE = 3BC$
 Prove: $\triangle ABC \sim \triangle DEC$



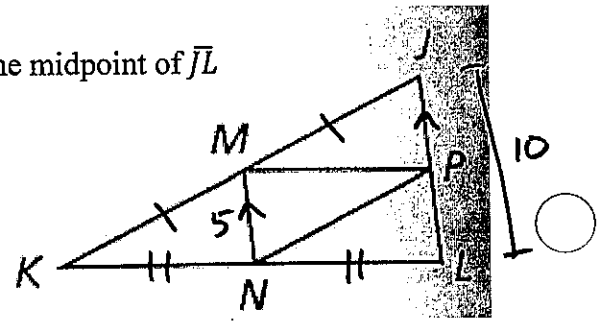
Statements	Reasons
① $CD = 3AC$ and $CE = 3BC$	① given
② $\frac{CD}{AC} = 3$ and $\frac{CE}{BC} = 3$	② division prop. =
③ $\frac{CD}{AC} = \frac{CE}{BC}$	③ Trans. prop. =
④ $\angle ACB \cong \angle DCE$	④ vertical $\angle$ s $\cong$
⑤ $\triangle ABC \sim \triangle DEC$	⑤ SAS~

2. Given: $\frac{PR}{MR} = \frac{QR}{NR}$
 Prove: $\angle 1 \cong \angle 2$



Statements	Reasons
① $\frac{PR}{MR} = \frac{QR}{NR}$	① given
② $\angle PRQ \cong \angle MNR$	② reflex. prop. $\cong$
③ $\triangle PQR \sim \triangle MNR$	③ SAS~ CASTC
④ $\angle 1 \cong \angle 2$	④ corresp. $\angle$ s of $\sim$ $\triangle$ s are $\cong$ (CASTC)

3. Given: M is the midpoint of $\overline{JK}$, N is the midpoint of $\overline{KL}$ and P is the midpoint of $\overline{JL}$
 Prove: $\triangle JKL \sim \triangle NPM$



Statements

Reasons

① M is mdpt of $\overline{JK}$, N is mdpt of $\overline{KL}$, P is mdpt of $\overline{JL}$

① given

② $\overline{MN}$, $\overline{NP}$, $\overline{MP}$ are midsegments

② def of a midsegment (Δ)

③ $MN = \frac{1}{2} JL$, $NP = \frac{1}{2} JK$, $MP = \frac{1}{2} KL$

③ Δ midseg. Thm.

④ $\frac{MN}{JL} = \frac{1}{2}$, $\frac{NP}{JK} = \frac{1}{2}$, $\frac{MP}{KL} = \frac{1}{2}$

④ division prop. =

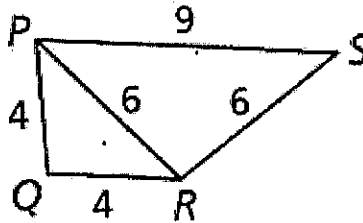
⑤ $\frac{MN}{JL} = \frac{NP}{JK} = \frac{MP}{KL}$

⑤ Trans. prop. =

⑥ $\triangle JKL \sim \triangle NPM$

⑥ SSS~

4. Given: the diagram
 Prove: $\triangle PQR \sim \triangle PRS$



Statements

Reasons

① $\frac{PQ}{PR} = \frac{2}{3}$, $\frac{QR}{RS} = \frac{2}{3}$, $\frac{PR}{PS} = \frac{2}{3}$

① given (diagram)

② $\frac{PQ}{PR} = \frac{QR}{RS} = \frac{PR}{PS}$

② Trans. prop. =

③ $\triangle PQR \sim \triangle PRS$

③ SSS~