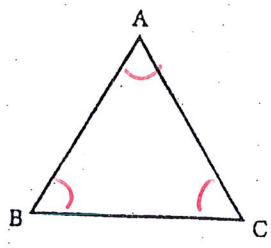
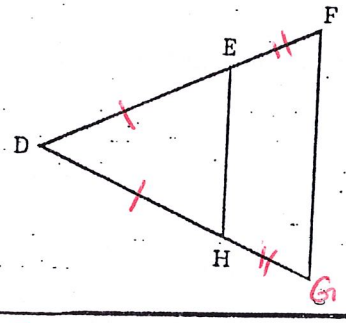
Write a two-column proof.

3 Given: $\angle A \cong \angle B$
$\angle B \cong \angle C$
Prove: $\angle A \cong \angle C$



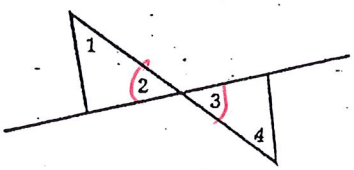
① $\angle A \cong \angle B$, $\angle B \cong \angle C$	① Given
② $\angle A \cong \angle C$	② Transitive Prop.

24 Given: $\overline{DE} \cong \overline{DH}$
$\overline{EF} \cong \overline{HG}$
Conclusion: $\overline{DF} \cong \overline{DG}$



① $\overline{DE} \cong \overline{DH}$, $\overline{EF} \cong \overline{HG}$	① Given
② $\overline{DF} \cong \overline{DG}$	② Addition Prop.

25 Given: $\angle 1$ is comp. to $\angle 2$.
$\angle 4$ is comp. to $\angle 3$.
Prove: $\angle 1 \cong \angle 4$



① $\angle 1$ compl $\angle 2$, $\angle 4$ compl $\angle 3$	① Given
② $\angle 2 \cong \angle 3$	② Vertical $\angle$s
③ $\angle 1 \cong \angle 4$	③ Congr Compl. Thm.

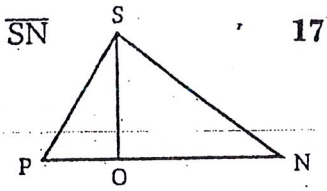
16 A certain angle is 30° less than 4 times its complement. Find its supplement.

16 114°

$x = 4(90 - x) - 30$
$x = 360 - 4x - 30$
$x = 330 - 4x$
$5x = 330$
$x = 66$
Suppl $= 180 - 66 = 114°$

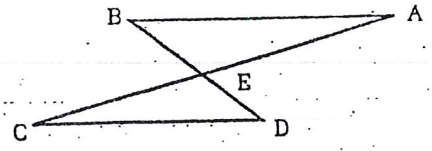
In problems 17-21, draw a conclusion and state the reason.

17 Given: $\overline{PS} \perp \overline{SN}$



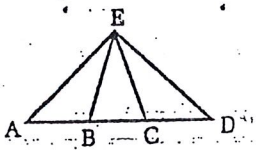
17 Conclusion: ∡PSN is Rt
Reason: Def ⊥

18 Given: $\overline{BD}$ bisects $\overline{AC}$.



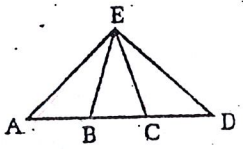
18 Conclusion: $\overline{CE} \cong \overline{AE}$
Reason: Def bisect

19 Given: $\angle AEB \cong \angle BEC \cong \angle CED$



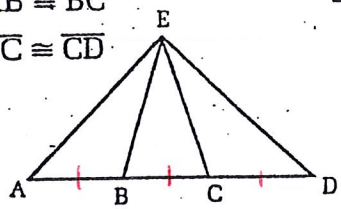
19 Conclusion: $\overline{EB}$ & $\overline{EC}$ Trisect ∡AED
Reason: Def. Trisect

20 Given: $\angle AEC \cong \angle BED$



20 Conclusion: ∡AEB ≅ ∡CED
Reason: Subtraction Prop.

21 Given: $\overline{AB} \cong \overline{BC}$
$\overline{BC} \cong \overline{CD}$



21 Conclusion: $\overline{AB} \cong \overline{CD}$
Reason: Transitive Prop or Substitution