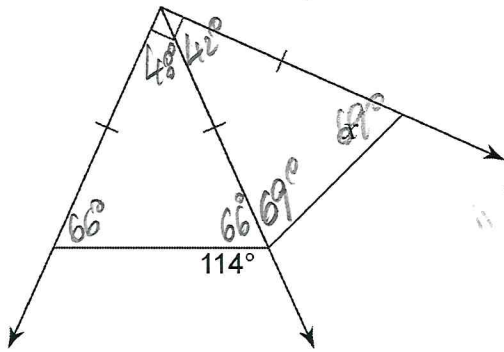


31. Solve for x in the diagram below.



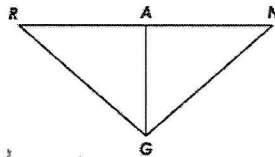
$$x = 69^\circ$$

32. Complete the following proofs:

Given: $\overline{RN} \perp \overline{AG}$,

A is the midpoint of $\overline{RN}$

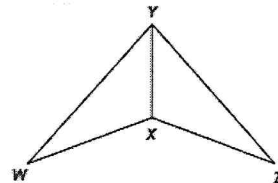
Prove: $\triangle GRA \cong \triangle GNA$



Given: $\overline{XY}$ bisects $\angle WYZ$

$\angle WXY \cong \angle ZXY$

Prove: $\triangle WXY \cong \triangle ZXY$



Statements

1. $\overline{RN} \perp \overline{AG}$
2. $\angle RAG$ & $\angle NAG$ rt $\angle$ s
3. $\angle RAG \cong \angle NAG$
4. $\overline{AG} \cong \overline{GA}$
5. A is midpt of $\overline{RN}$
6. $\overline{RA} \cong \overline{NA}$
7. $\triangle GRA \cong \triangle GNA$

Reasons

1. Given
2. def of perpendicular
3. all right $\angle$ s are $\cong$
4. reflexive prop.
5. Given
6. definition of midpoint
7. SAS

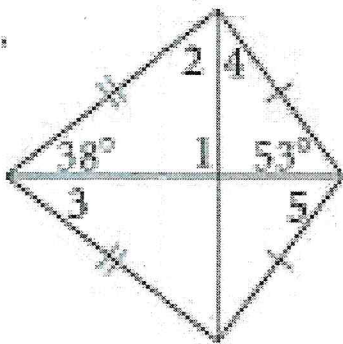
Statements

1. $\overline{XY}$ bisects $\angle WYZ$
2. $\angle WYX \cong \angle ZYX$
3. $\angle WXY \cong \angle ZXY$
4. $\overline{YX} \cong \overline{XY}$
5. $\triangle WXY \cong \triangle ZXY$

Reasons

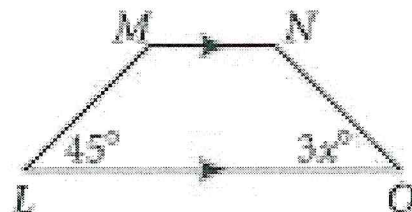
1. Given
2. def of $\angle$ bisector
3. Given
4. reflexive prop.
5. ASA

33. Find the missing angles in the kite:



$$\begin{aligned} \angle 1 &= 90^\circ \\ \angle 2 &= 52^\circ \\ \angle 3 &= 38^\circ \\ \angle 4 &= 37^\circ \\ \angle 5 &= 53^\circ \end{aligned}$$

34. Find the missing variable in the trapezoid:



$$45 = 3x \quad \text{base angles are } \cong$$

$$x = 15$$