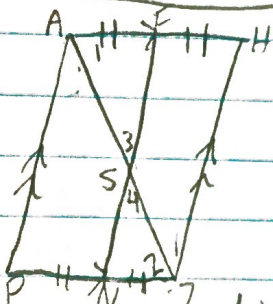


given: \overline{AF} bisects $\angle BAC$
 $\overline{DE} \parallel \overline{AB}$

Prove: $\triangle ADE$ is isos

\overline{AF} bisects $\angle BAC \rightarrow$ given
 $\angle 1 \cong \angle 2 \rightarrow$ bisectors create 2 \cong parts
 $\overline{DE} \parallel \overline{AB} \rightarrow$ given
 $\angle 1 \cong \angle 3 \rightarrow$ alt int \angle 's \cong
 $\angle 2 \cong \angle 4 \rightarrow$ both \cong to $\angle 1$
 $\triangle ADE$ is isos $\rightarrow 2 \cong$ base \angle 's

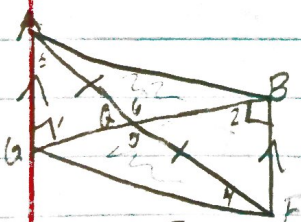


given: F is mdpt of \overline{AH}
 N is mdpt of \overline{TP}
 $AHTP$ is a \square

Prove: S is mdpt of \overline{FN}

$\angle 1 \cong \angle 2 \rightarrow$ alt int \angle 's \cong

F is mdpt of $\overline{AH} \rightarrow$ given
 $\overline{AF} \cong \overline{FH} \rightarrow$ mdpt creates 2 \cong parts
 N is mdpt of $\overline{TP} \rightarrow$ given
 $\overline{PN} \cong \overline{NJ} \rightarrow$ mdpt creates 2 \cong parts
 $AHTP$ is a $\square \rightarrow$ given
 $\overline{AH} \cong \overline{TP} \rightarrow$ opp \cong // sides
 $\overline{NJ} \cong \overline{AF} \rightarrow$ $\frac{1}{2}$ of \cong sides
 $\angle 3 \cong \angle 4 \rightarrow$ vert \angle 's \cong
 $\triangle STN \cong \triangle SAF \rightarrow$ AAS
 $\overline{FS} \cong \overline{SN} \rightarrow$ corr. sides of \cong \triangle 's
 S is mdpt of $\overline{FN} \rightarrow$ cuts \overline{FN} in 2 \cong parts



given: $\overline{AG} \perp \overline{GB}$
 $\overline{FB} \perp \overline{GB}$
 \overline{GB} bisects \overline{AF}

prove: $\triangle ABQ \cong \triangle FQG$

$\overline{AG} \perp \overline{GB} \rightarrow$ given
 $\overline{FB} \perp \overline{GB} \rightarrow$ given
 $\overline{AG} \parallel \overline{BF} \rightarrow$ both \perp to the same line
 $\angle 1 \cong \angle 2 \rightarrow$ alt int \angle 's \cong when lines \parallel
 $\angle 3 \cong \angle 4$
 \overline{GB} bisects $\overline{AF} \rightarrow$ given
 $\triangle AGQ \cong \triangle FBQ \rightarrow$ AAS
 $\angle 6 \cong \angle 5 \rightarrow$ vert \angle 's \cong
 $\overline{GQ} \cong \overline{QB} \rightarrow$ CPCTC
 $\triangle ABQ \cong \triangle FQG \rightarrow$ SAS