**1. a.** Given

**b.** Refl. Prop. of $\cong$

**c.** $\triangle JKM$

**d.** $\triangle LMK$

**2.** $F$ is the midpt. of $\overline{GI}$ (Given), so $\overline{IF} \cong \overline{GF}$ because a midpt. divides a segment into two $\cong$ segments. The other two pairs of sides are given as $\cong$, so $\triangle EFI \cong \triangle HFG$ by SSS.

**3.** You need to know $\overline{LG} \cong \overline{MN}$; the diagram shows that $\overline{LT} \cong \overline{MQ}$ and $\angle L \cong \angle M$. $\angle L$ is included between $\overline{LG}$ and $\overline{LT}$, and $\angle M$ is included between $\overline{MN}$ and $\overline{MQ}$.

**4.** You need to know $\overline{RS} \cong \overline{WU}$; the diagram shows that $\angle R \cong \angle W$ and $\overline{RT} \cong \overline{WV}$. $\angle R$ is included between $\overline{RT}$ and $\overline{RS}$, and $\angle W$ is included between $\overline{WV}$ and $\overline{WU}$. Alternatively, you need to know that $\angle T \cong \angle V$.

**5.** Not enough information; the congruent vertical angles $TQP$ and $RQS$ are not included by the pairs of $\cong$ sides.

**6.** SAS; the $\cong$ angles $BAC$ and $DCA$ are included by the pairs of sides $\overline{AB} \cong \overline{CD}$ (Given) and $\overline{AC} \cong \overline{AC}$ (Refl. Prop. of $\cong$).

**7. a.** $\angle PEN$ (or $\angle E$)

**b.** $\angle NPE$ (or $\angle P$)

**8. a.** $\overline{HA}$ and $\overline{HT}$

**b.** $\overline{TH}$ and $\overline{TA}$

**9.** SAS

**10.** SSS

**11.** Answers may vary. Sample: Alike: Both use three pairs of $\cong$ parts to prove $\triangle \cong$. Different: SSS uses three pairs of $\cong$ sides, while SAS uses two pairs of $\cong$ sides and their $\cong$ included $\angle$s.

**12.** No; the $\cong$ $\angle$s are not included between the pairs of $\cong$ sides.

**13.** No; the $\triangle$ have the same perimeter, but the three side lengths of one $\triangle$ are not necessarily $=$ to the three side lengths of the other $\triangle$, so you cannot use SSS. There is no information about the $\angle$s of the $\triangle$, so you cannot use SAS.

**14.** If the $40^\circ$ $\angle$ is *always* included between the two 5-in. sides, then all the triangles will be congruent by SAS. In other cases, the triangles may or may not be congruent.

**23.** $\triangle ANG \cong \triangle RWT$ by SAS.

**24.** Not enough information; you need $\overline{DY} \cong \overline{TK}$ to show the $\triangle$ are $\cong$ by SSS, or you need $\angle H \cong \angle P$ to show the $\triangle$ are $\cong$ by SAS.

**25.** $\triangle JEF \cong \triangle SFV$ (or $\triangle JEF \cong \triangle SVF$) by SSS

**26.** ~~Not necessarily; the $\cong$ $\angle$s are not included between the pairs of $\cong$ sides.~~

**27.** $\overline{GK}$ bisects $\angle JGM$ (Given), so $\angle JGK \cong \angle MGK$ (Def. of $\angle$ bisector). $\overline{GJ} \cong \overline{GM}$ (Given) and $\overline{GK} \cong \overline{GK}$ (Refl. Prop. of $\cong$), so $\triangle GJK \cong \triangle GMK$ by SAS.