Review for the Chapter 4 Quiz

Determine what congruent statements can be justified. Number your steps. Can the following triangles be proven congruent? If so, write a congruence statement and provide the reason.

Key

1.
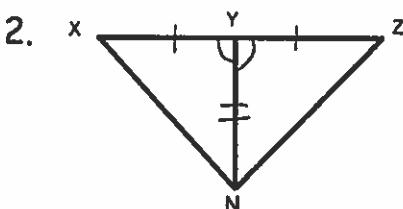
$\overline{AC}$ is the bisector of angle A.

Statements (Reasons)

① $\overline{BC} \cong \overline{CD}$ [Given]

② $\overline{AC} \cong \overline{AC}$ [Refl. Prop. of $\cong$]

③ $\angle BAC \cong \angle DAC$ [Def. of $\angle$ bisector]

Not enough info to prove $\triangle$s $\cong$.
[$\angle$ is not included]
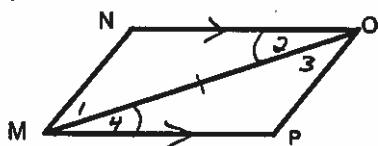
2.

$\overline{NY}$ is the bisector of $\overline{XZ}$ and $\overline{NY} \perp \overline{XZ}$.

① Y is the midpt of $\overline{XZ}$ [Def. of Segment bisector]

② $\overline{YX} \cong \overline{YZ}$ [Def. of midpoint]

③ $\angle XYN \cong \angle ZYN$ [$\perp$ lines form $\cong$ adj. $\angle$s]

④ $\overline{YN} \cong \overline{YN}$ [Refl. Prop. of $\cong$]

⑤ $\triangle XYN \cong \triangle ZYN$ [SAS $\cong$ Post]

[The $\angle$ is included.]

3.
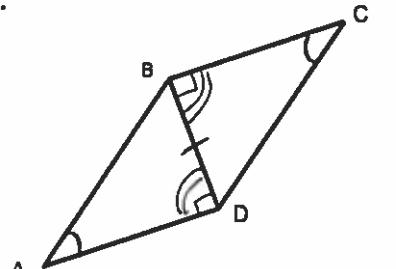
$\overline{NO} // \overline{MP}$

Statements (Reasons)

① $\angle 2 \cong \angle 4$ [Alt. Int. $\angle$s Thrm]

② $\overline{MO} \cong \overline{MO}$ [Refl. Prop. of $\cong$]

Not enough info to prove $\triangle$s $\cong$.
[only 2 $\cong$ statements]
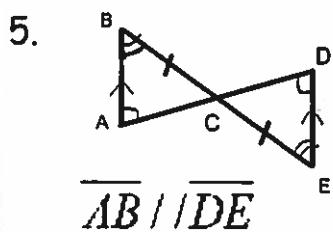
4.

$\overline{BD} \perp \overline{BC}$ and $\overline{AD} \perp \overline{BD}$
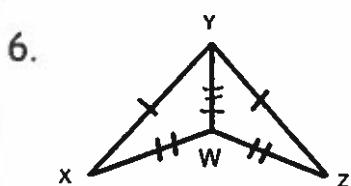
① $\angle A \cong \angle C$ [Given]

② $\angle CBD$ and $\angle ADB$ are Rt. $\angle$s [Def. of $\perp$]

③ $\angle CBD \cong \angle ADB$ [Rt. $\angle$s Thrm]

④ $\overline{BD} \cong \overline{BD}$ [Refl. Prop. of $\cong$]

⑤ $\triangle ADB \cong \triangle CBD$ [AAS $\cong$ Thrm]

[The side is not included.]

5.

$$\overline{AB} // \overline{DE}$$
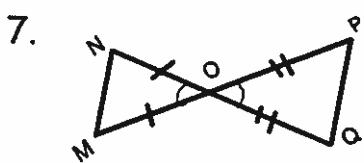
Statements (Reasons)

① $\overline{BC} \cong \overline{CE}$ [Given]

② $\angle A \cong \angle D$, $\angle B \cong \angle E$ [Alt. Int. $\angle$s Thrm]

③ $\triangle ABC \cong \triangle DEC$ [AAS $\cong$ Thrm]

[$\angle$ side is <u>not</u> included.]

6.
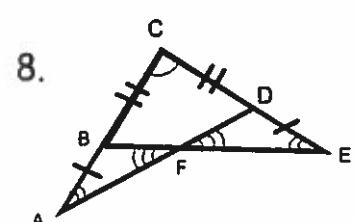
① $\overline{XY} \cong \overline{ZY}$, $\overline{XW} \cong \overline{ZW}$ [Given]

② $\overline{YW} \cong \overline{YW}$ [Refl. Prop. of $\cong$]

③ $\triangle XYW \cong \triangle ZYW$ [SSS $\cong$ Post]

7.
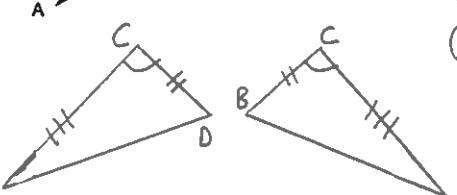
Statements (Reasons)

① $\overline{NO} \cong \overline{MO}$, $\overline{OP} \cong \overline{OQ}$ [Given]
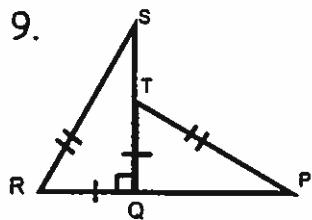
② $\angle NOM \cong \angle POQ$ [Vert. $\angle$s Thrm]

Not enough info to prove $\triangle$s $\cong$.

[The $\cong$ sides are not in different $\triangle$s.]

8.

① $\overline{BC} \cong \overline{DC}$, $\overline{AB} \cong \overline{DE}$ [Given]

② $AB = DE$, $BC = DC$ [Def. of $\cong$ seg.]

③ $AB + BC = DE + DC$ [Add Prop. of $=$ (2+2)]

④ $AC = AB + BC$, $EC = DE + DC$ [Seg. Add. Post.]

⑤ $AC = EC$ [Trans. Prop. of $=$]

⑥ $\overline{AC} \cong \overline{EC}$ [Def. of $\cong$ seg.]

⑦ $\angle C \cong \angle C$ [Refl. Prop. of $\cong$]

⑧ $\triangle ACD \cong \triangle ECB$ [SAS $\cong$ Post]

⑨ $\angle A \cong \angle E$ [CPCTC]

2nd pairs of $\triangle$s! ⑩ $\angle BFA \cong \angle DFE$ [Vert. $\angle$s Thrm]

⟶ ⑪ $\triangle ABF \cong \triangle EDF$ [AAS $\cong$ Thrm]

2

9.
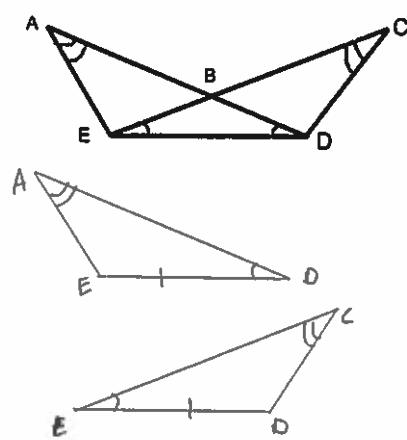
Statements (Reasons)

① $\overline{RS} \cong \overline{TP}$, $\overline{RQ} \cong \overline{TQ}$ {Given}

② $\angle RQS \cong \angle PQT$ {⊥ lines form ≅ adj ∠s}

Not enough info to prove $\angle s \cong$, {for now}

{ The $\angle$ is not included }

10.

① $\angle BED \cong \angle BDE$, $\angle A \cong \angle C$ {Given}

② $\overline{ED} \cong \overline{ED}$ {Refl. Prop. of ≅}

③ $\triangle AED \cong \triangle CDE$ {AAS ≅ Thrm}

{The side is **not** included.}

Assignment #32

Part I: Review for the Chapter 4 Quiz

Part II: p. 133 #6-8 (2-column proofs)

Update your Chapter 4 Study Guide!