

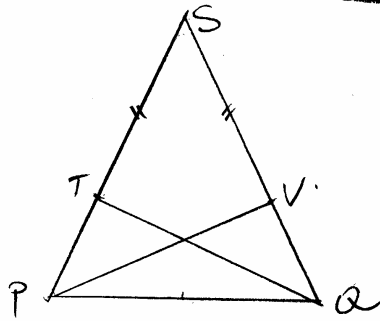
Homework #5 - Solutions

SECTION 3.1

(40) Given $\overline{SP} \cong \overline{SQ}$
 $\overline{ST} \cong \overline{SV}$

Prove: $\triangle SPV \cong \triangle SQT$
 $\triangle TPQ \cong \triangle VQP$

Proof



Statements

Reasons

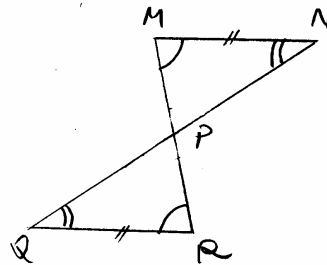
1. $\triangle SPV$ $\triangle SQT$ $\left\{ \begin{array}{l} \overline{SP} \cong \overline{SQ} \\ \overline{SV} \cong \overline{ST} \\ \angle PSV \cong \angle QST \end{array} \right.$	1- $\left\{ \begin{array}{l} \text{given} \\ \text{given} \\ \text{reflexive prop. } \cong \end{array} \right.$
2. $\triangle SPV \cong \triangle SQT$	2. SAS
3. $\overline{PV} \cong \overline{QT}$	3. CPCTC
4. $SP = ST + TP$ $SQ = SV + VQ$	4. Segment-Addition Postulate
5. $SP = SQ$ $ST = SV$	5. Definition of \cong segments
6. $ST + TP = SV + VQ$	6. Substitution.
(4,5) 7. $TP = VQ$	7. Subtraction prop. of $=$.
(5,6) 8. $\overline{TP} \cong \overline{VQ}$	8. Definition of \cong segments
9. $\triangle TPQ$ $\triangle VQP$ $\left\{ \begin{array}{l} \overline{PQ} \cong \overline{PQ} \\ \overline{TP} \cong \overline{VQ} \\ \overline{TQ} \cong \overline{VQ} \end{array} \right.$	9. $\left\{ \begin{array}{l} \text{reflexive prop. } \cong \\ (2) \\ (3) \end{array} \right.$
10. $\triangle TPQ \cong \triangle VQP$	10. SSS

SECTION 3.2

(4) Given: $\overline{MN} \parallel \overline{QR}$
 $\overline{MN} \cong \overline{QR}$

Prove: $\triangle MNP \cong \triangle RQP$

Proof



Statements

Reasons

1. $\overline{MN} \parallel \overline{QR}$
2. $\angle M \cong \angle R$
 $\angle N \cong \angle Q$
3. $\triangle MNP \cong \triangle RQP$ $\left\{ \begin{array}{l} \overline{MN} \cong \overline{QR} \\ \angle M \cong \angle R \\ \angle N \cong \angle Q \end{array} \right.$
4. $\triangle MNP \cong \triangle RQP$

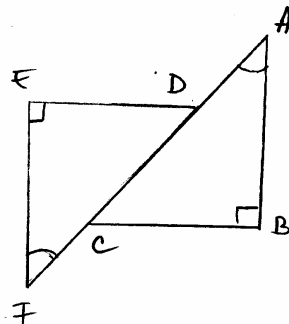
1. given
2. alternate interior \angle 's
3. $\left\{ \begin{array}{l} \text{given} \\ (2) \\ (2) \end{array} \right.$
4. ASA

(16) Given: $\overline{DE} \perp \overline{EF}$
 $\overline{CB} \perp \overline{AB}$
 $\overline{AB} \parallel \overline{FE}$
 $\overline{AC} \cong \overline{FD}$

Prove

$\overline{EF} \cong \overline{BA}$

Proof



Note:
 We will show
 that $\triangle FED \cong$
 $\triangle ABC$

Statements

Reasons

1. $\overline{DE} \perp \overline{EF}$
2. $\angle E = \text{right } \angle$
3. $\overline{CB} \perp \overline{AB}$
4. $\angle B = \text{right } \angle$
5. $\angle E \cong \angle B$
6. $\overline{AB} \parallel \overline{FE}$
7. $\angle F \cong \angle A$
8. $\triangle FED \cong \triangle ABC$ $\left\{ \begin{array}{l} \overline{FD} \cong \overline{AC} \\ \angle E \cong \angle B \\ \angle F \cong \angle A \end{array} \right.$

1. given
2. \perp lines iff. right \angle 's
3. given
4. \perp lines iff. right \angle 's
5. right \angle 's are \cong .
6. given
7. alternate interior \angle 's.
8. $\left\{ \begin{array}{l} \text{given} \\ (5) \\ (7) \end{array} \right.$

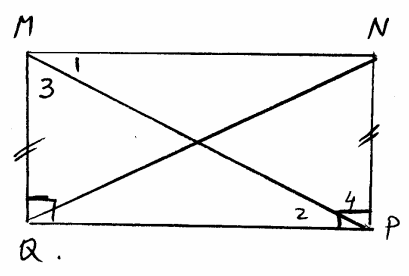
- 9. $\triangle FED \cong \triangle ABC$
- 10. $\overline{EF} \cong \overline{BA}$

- 9. AAS
- 10. CPCTC.

26) Given: $\angle MQP$ and $\angle NPQ = \text{right } \angle$'s
 $\overline{MQ} \cong \overline{NP}$

Prove: $\overline{MP} \cong \overline{NQ}$

We'll show that $\triangle MQP \cong \triangle NPQ$



Statements	Proof	Reasons
1. $\angle MQP$ & $\angle NPQ = \text{right } \angle$'s		1. given
2. $\angle MQP \cong \angle NPQ$		2. right \angle 's are \cong
3. $\triangle MQP$ & $\triangle NPQ$ <div style="display: inline-block; vertical-align: middle; margin-left: 10px;"> $\left\{ \begin{array}{l} \overline{PQ} \cong \overline{PQ} \\ \angle MQP \cong \angle NPQ \\ \overline{MQ} \cong \overline{NP} \end{array} \right.$ </div>		3. $\left\{ \begin{array}{l} \text{reflexive prop. } \cong \\ (2) \\ \text{given} \end{array} \right.$
4. $\triangle MQP \cong \triangle NPQ$		4. SAS
5. $\overline{MP} \cong \overline{NQ}$		5. CPCTC