3.4 – Practice Proofs Name: Key

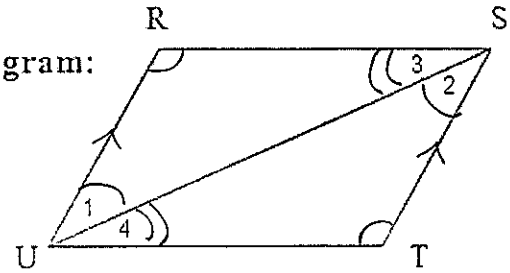
1.

Given: $\angle R \cong \angle T$

$\overline{RU} \parallel \overline{ST}$

Prove: $\overline{RS} \parallel \overline{UT}$

Diagram:



Statements	Reasons
1. $\angle R \cong \angle T$; $\overline{RU} \parallel \overline{ST}$	1. Given
2. $\angle 1 \cong \angle 2$	2. $\parallel$ lines $\rightarrow$ Alt. int. $\angle$s $\cong$
3. $\angle 3 \cong \angle 4$	3. 2 $\angle$s 1 Δ $\cong$ to 2 $\angle$s another Δ $\rightarrow$
4.	3rd $\angle$s $\cong$
4. $\overline{RS} \parallel \overline{UT}$	4. Alt. int. $\angle$s $\cong$ $\rightarrow$ $\parallel$ lines

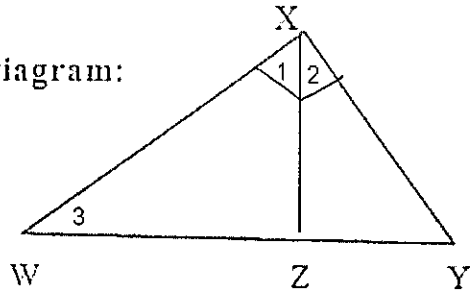
2.

Given: $\overline{WX} \perp \overline{XY}$

$\angle 1$ is complementary to $\angle 3$

Prove: $\angle 2 \cong \angle 3$

Diagram:



Statements	Reasons
1. $\overline{WX} \perp \overline{XY}$	1. Given
2. $\angle 1$ is comp. to $\angle 2$	2. Exterior sides of 2 adj.,
	acute $\angle^s \perp \rightarrow \angle^s$ comp.
3. $\angle 1$ is comp. to $\angle 3$	3. Given
4. $\angle 2 \cong \angle 3$	4. 2 $\angle^s$ comp. to same $\angle \rightarrow \angle^s \cong$

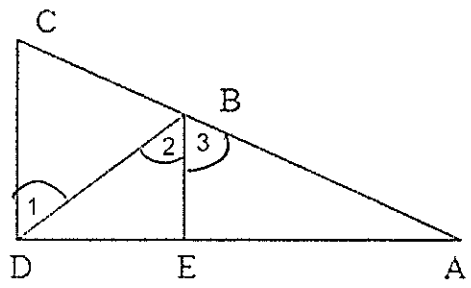
3.

Given: $\angle 3 \cong \angle 1$

$\overrightarrow{BE}$ bisects $\angle DBA$

Prove: $\overline{CD} \parallel \overline{BE}$

Diagram:



Statements	Reasons
1. $\angle 3 \cong \angle 1$; $\overrightarrow{BE}$ bisects $\angle DBA$	1. Given
2. $\angle 2 \cong \angle 3$	2. def. $\angle$ bis.
3. $\angle 2 \cong \angle 1$	3. Transitive
4. $\overline{CD} \parallel \overline{BE}$	4. Alt. int. $\angle$s $\cong \rightarrow \parallel$ lines

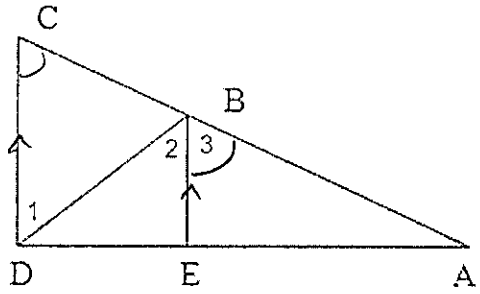
4.

Given: $\angle C \cong \angle 3$

$\overline{BE} \perp \overline{DA}$

Prove: $\overline{CD} \perp \overline{DA}$

Diagram:



Statements	Reasons
1. $\angle C \cong \angle 3$	1. Given
2. $\overline{CD} \parallel \overline{BE}$	2. corr. $\angle$s $\cong$ → $\parallel$ lines
3. $\overline{BE} \perp \overline{DA}$	3. Given
4. $\overline{CD} \perp \overline{DA}$	4. line $\perp$ to 1 of 2 $\parallel$ lines → $\perp$ to other