**Geometry Honors**
**Proof Template**

Name Key

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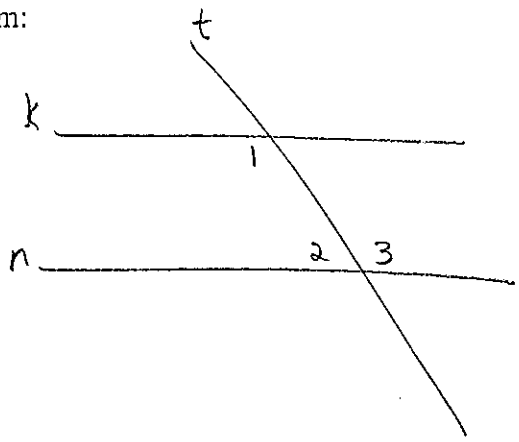
Given: $\angle 1$ is supp. to $\angle 2$

Prove: $k \parallel n$

Diagram:




| Statement | Reason |
|---|---|
| 1. $\angle 1$ is supp. to $\angle 2$ | 1. Given |
| 2. $m\angle 2 + m\angle 3 = 180$ | 2. $\angle$ Add'n Post. |
| 3. $\angle 2$ is supp. to $\angle 3$ | 3. def. supp. |
| 4. $\angle 1 \cong \angle 3$ | 4. 2 $\angle$s supp. same $\angle$ $\rightarrow$ $\cong \angle$s |
| 5. $k \parallel n$ | 5. Alt. int. $\angle$s $\cong$ $\rightarrow$ $\parallel$ lines |
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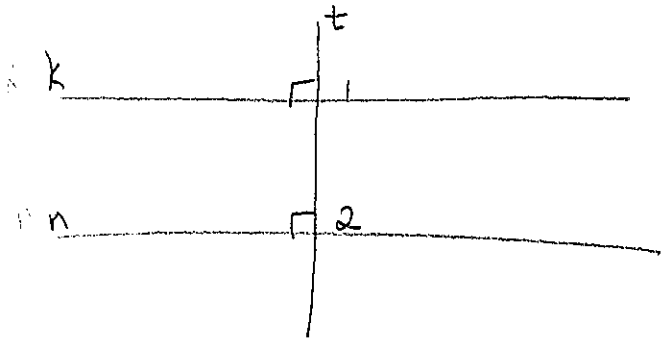
Given:
$k \perp t$; $n \perp t$

Prove: $k \parallel n$

Diagram:




| Statement | Reason |
|---|---|
| 1. $k \perp t$; $n \perp t$ | 1. Given |
| 2. $m\angle 1 = 90$; $m\angle 2 = 90$ | 2. def. $\perp$ |
| 3. $m\angle 1 = m\angle 2$ | 3. subst. |
| 4. $\angle 1 \cong \angle 2$ | 4. def. $\cong$ |
| 5. $k \parallel n$ | 5. corr. $\angle^s \cong \rightarrow \parallel$ lines |
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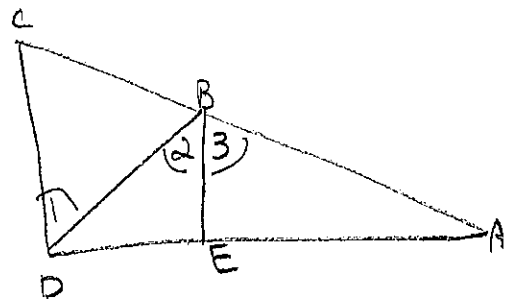
Given: $\overline{BE}$ bisects $\angle DBA$
$\angle 3 \cong \angle 1$

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

Diagram:




| Statement | Reason |
|---|---|
| 1. $\overline{BE}$ bisects $\angle DBA$ | 1. Given |
| 2. $\angle 2 \cong \angle 3$ | 2. def. $\angle$ bisect |
| 3. $\angle 3 \cong \angle 1$ | 3. Given |
| 4. $\angle 2 \cong \angle 1$ | 4. Transitive |
| 5. $\overline{CD} \parallel \overline{BE}$ | 5. alt. int. $\angle$s $\cong \rightarrow \parallel$ lines |
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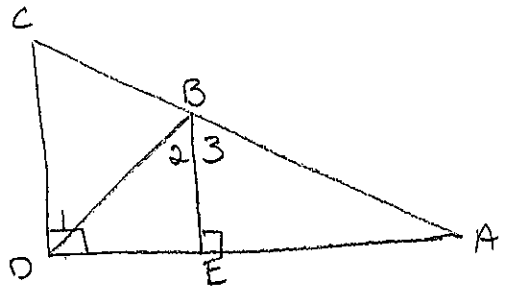
Diagram:




Given: $\overline{BE} \perp \overline{DA}$ ; $\overline{CD} \perp \overline{DA}$

Prove: $\angle 1 \cong \angle 2$

| Statement | Reason |
|---|---|
| 1. $\overline{BE} \perp \overline{DA}$ ; $\overline{CD} \perp \overline{DA}$ | 1. Given |
| 2. $\overline{CD} \parallel \overline{BE}$ | 2. 2 lines $\perp$ to same line $\rightarrow$ $\parallel$ lines |
| 3. $\angle 1 \cong \angle 2$ | 3. $\parallel$ lines $\rightarrow$ alt. int. $\angle$s $\cong$ |
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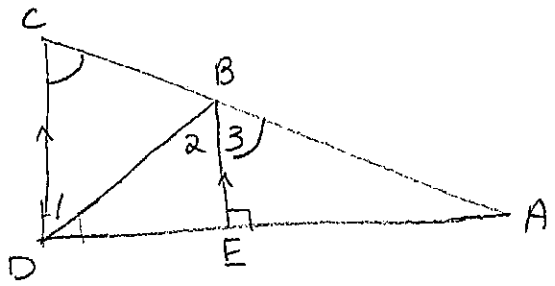
Given: $\angle C \cong \angle 3$ ; $\overline{BE} \perp \overline{DA}$

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

Diagram:




| Statement | Reason |
|---|---|
| 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. Transv. $\perp$ to 1 of 2 $\parallel$ lines → |
| | $\perp$ to other |
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Diagram:

Given:

Prove:

| Statement | Reason |
|---|---|
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