

Two Column Proofs

1. Given: $\angle M$ is supplementary to $\angle A$
 $\angle T$ is supplementary to $\angle H$
 $\angle M \cong \angle T$

Prove: $\angle A \cong \angle H$

- 1) $\angle M$ is supp to $\angle A$
2) $\angle T$ is supp to $\angle H$
3) $\angle M \cong \angle T$
4) $\angle A \cong \angle H$

- 1) Given
2) Given
3)
4) If 2 \angle 's are supp to \cong \angle 's then they are \cong .

2. Given: $\angle R$ is a right angle
 $\angle O$ is a right angle

Prove: $\angle R \cong \angle O$

- 1) $\angle R$ is a rt \angle
2) $\angle O$ is a rt \angle
3) $\angle R \cong \angle O$

- 1) Given
2) Given
3) If 2 \angle 's are a rt \angle then they are \cong
(OR All right \angle 's are \cong)

3. Given: $\angle C$ and $\angle K$ form a linear pair

Prove: $\angle C$ and $\angle K$ are supplementary

- 1) $\angle C$ & $\angle K$ form a linear pair
2) $\angle C$ & $\angle K$ are supp

- 1) Given
2) If 2 \angle 's form a linear pair then they are supp.

4. Given: $\angle S$ is complementary to $\angle G$
 $\angle E$ is complementary to $\angle G$

Prove: $\angle S \cong \angle E$

- 1) $\angle S$ is comp to $\angle G$
- 2) $\angle E$ is comp to $\angle G$
- 3) $\angle S \cong \angle E$

- 1) Given
- 2) Given
- 3) If 2 \angle 's are comp to the same \angle then they are \cong .

5. Given: $\angle H$ is an acute angle
 $\angle H \cong \angle C$

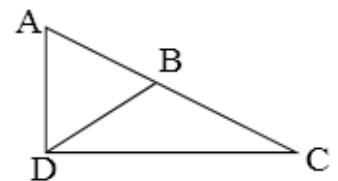
Prove: $\angle C$ is an acute angle

- 1) $\angle H$ is acute angle
- 2) $\angle H \cong \angle C$
- 3) $\angle C$ is acute angle

- 1) Given
- 2) Given
- 3) Substitution Property

6. Given: $\angle ABD$ and $\angle CBD$ are supplementary

Prove: $m\angle ABD + m\angle CBD = 180^\circ$



- 1) $\angle ABD$ & $\angle CBD$ are supp.
- 2) $m\angle ABD + m\angle CBD = 180^\circ$

- 1) Given
- 2) If 2 \angle 's are supp, then their sum is 180° .

7. Given: $\angle ABD$ and $\angle CBD$ are complementary

Prove: $m\angle ABD + m\angle CBD = 90^\circ$

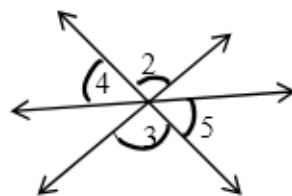
- | | |
|---|---|
| ① $\angle ABD$ and $\angle CBD$ are complementary | ① Given |
| ② $m\angle ABD + m\angle CBD = 90^\circ$ | ② If two angles are complementary, then their sum is 90° . |

8. Given: $\angle 2 \cong \angle 3$

$\angle 3 \cong \angle 4$

$\angle 4 \cong \angle 5$

Prove: $\angle 2 \cong \angle 5$



- | | |
|-----------------------------|-----------------------|
| ① $\angle 2 \cong \angle 3$ | ① Given |
| ② $\angle 3 \cong \angle 4$ | ② Given |
| ③ $\angle 4 \cong \angle 5$ | ③ Given |
| ④ $\angle 2 \cong \angle 5$ | ④ Transitive Property |

9. Properties Practice: Give your own example for each property!

Reflexive Property: $a = a$

Symmetric Property: If $a = b$, then $b = a$

Transitive Property: $a = b$, $b = c$, then $a = c$

Substitution Property: $a = 3$, $\overline{BD} + a = 5$, then $\overline{BD} + 3 = 5$