Writing a Two-Column Proof
Proof Practice Worksheet #3

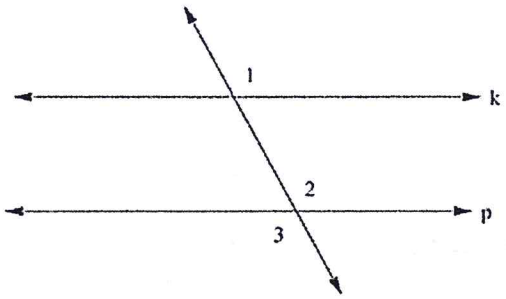
Name Key
Date 10/12 Hour _____

Fill in the missing statement and/or reason for each two-column proof. Study **WHAT IS GIVEN** and **WHY**. Mark all given information on the diagram. Remembr to start each proof with the **GIVEN** information and end with the **PROVE** statement.

1)

**Given :**
- line k ∥ line p

**Prove :**
$m\angle 1 = m\angle 3$




| Statements | Reasons |
|---|---|
| 1) k ∥ p | 1) Given |
| 2) $m\angle 2 = m\angle 3$ | 2) Vertical Angles Theorem |
| 3) $m\angle 1 = m\angle 2$ | 3) Corresponding ∠'s are ≅ |
| 4) $m\angle 1 = m\angle 3$ | 4) Substitution |

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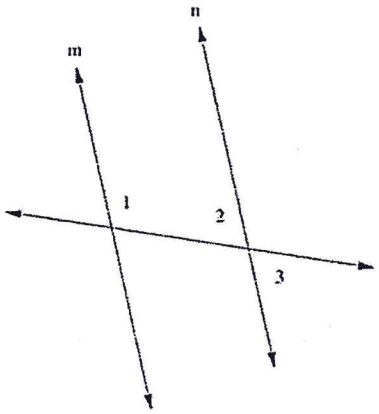
2)

**Given :**
- ∠1 and ∠3 are supplementary

**Prove :**
line m ∥ line n

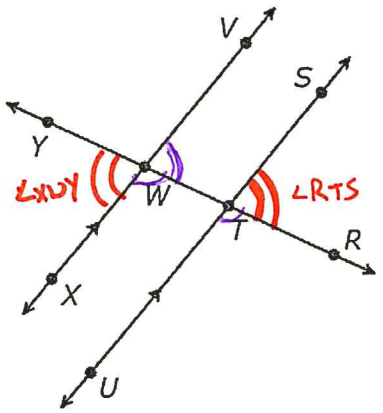



| Statements | Reasons |
|---|---|
| 1) ∠1 + ∠3 are supplementary | 1) Given |
| 2) $m\angle 1 + m\angle 3 = 180^\circ$ | 2) Definition of Supplementary |
| 3) $m\angle 2 = m\angle 3$ | 3) Vertical ∠'s Thm. |
| 4) $m\angle 1 + m\angle 2 = 180^\circ$ | 4) Substitution |
| 5) ∠1 and ∠2 are supplementary : | 5) Def. of Supplementary |
| 6) m ∥ n | 6) Same Side Int. ∠'s Suppl. so lines are parallel. |

3)

**Given:** $\overleftrightarrow{SU} \parallel \overleftrightarrow{VX}$

**Prove:** $\angle RTS \cong \angle XWY$




| Statements | Reasons |
|---|---|
| 1) $\overleftrightarrow{SU} \parallel \overleftrightarrow{VX}$ | 1) Given |
| 2) [illegible] $\angle RTS \cong \angle TWV$ | 2) Corresponding Angles Postulate |
| 3) $\angle TWV \cong \angle XWY$ | 3) Vert. ∠'s thm. |
| 4) $\angle RTS \cong \angle XWY$ | 4) Substitution |

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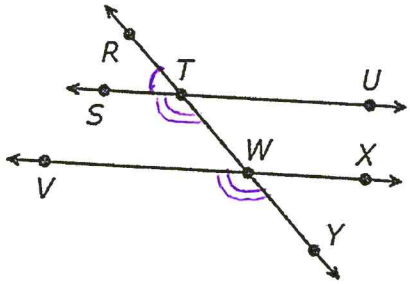
4)

**Given:** $\angle RTS$ and $\angle VWY$ are supplementary

**Prove:** $\overleftrightarrow{SU} \parallel \overleftrightarrow{VX}$.




| Statements | Reasons |
|---|---|
| 1) $\angle RTS$ + $\angle VWY$ are Supp. | 1) Given |
| 2) $m\angle RTS + m\angle VWY = 180°$ | 2) Definition of supplementary angles |
| 3) $m\angle RTS + m\angle STW = 180°$ | 3) Linear Pair |
| 4) $m\angle RTS + m\angle VWY = m\angle RTS + m\angle STW$ | 4) Substitution |
| 5) $m\angle VWY = m\angle STW$ | 5) Subtraction Property of Equality |
| 6) $\overleftrightarrow{SU} \parallel \overleftrightarrow{VX}$ | 6) Corresponding ∠'s are congruent. |