|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Given:** ∠4 ≅ ∠6**Prove:** ∠5 ≅ ∠6

| Statement: | Reason: |
| --- | --- |
| 1. ∠4 ≅ ∠6 | 1. Given |
| 2. ∠5 ≅ ∠4 | 2. Vertical Angles Theorem |
| 3. ∠5 ≅ ∠6 | 3. Transitive Property |

*\*A paragraph proof has the same information as a two-column proof, but the statements and reasons are phrased in complete sentences.* | Shape  Description automatically generated |
| **Given:** ∠1 ≅ ∠3**Prove:** ∠2 ≅ ∠4

| Statement: | Reason: |
| --- | --- |
| 1. ∠1 ≅ ∠3 | 1. Given |
| 2. *m*∠1 + *m*∠2 = 90° | 2. Definition of Right Angles |
| 3. *m*∠3 + *m*∠4 = 90° | 3. Definition of Right Angles |
| 4. *m*∠1 + *m*∠2 = *m*∠3 + *m*∠4 | 4. Transitive Property |
| 5. ∠2 = ∠4 | 5. Subtraction Property |
| 6. ∠2 ≅ ∠4 | 6. Definition of Congruent Angles |

 |  |
| **Given:** ∠*AEC* is a right angle ∠*BED* is a right angle**Prove:** ∠*AEB* ≅ ∠*CED*

| Statement: | Reason: |
| --- | --- |
| 1. ∠*AEC* is a right angle | 1. Given |
| 2. ∠*BED* is a right angle | 2. Given |
| 3. *m*∠*AEB* + *m*∠*BEC* = *m*∠*AEC* | 3. Angle Addition Postulate |
| 4. *m*∠*AEB* + *m*∠*BEC* = 90° | 4. Definition of Right Angles |
| 5. *m*∠*BEC* + *m*∠*CED* = ∠*BED* | 5. Angle Addition Postulate |
| 6. *m*∠*BEC* + *m*∠*CED* = 90° | 6. Definition of Right Angles |
| 7. *m*∠*AEB* + *m*∠*BEC* = *m*∠*BEC* + *m*∠*CED* | 7. Transitive Property |
| 8. *m*∠*AEB* = *m*∠*CED* | 8. Subtraction Property |
| 9. ∠*AEB* ≅ ∠*CED* | 9. Definition of Congruent Angles |

 | Shape  Description automatically generated with medium confidence |
| **Given:**  bisects ∠*DGF*  intersects and **Prove:** ∠1 ≅ ∠2

| Statement: | Reason: |
| --- | --- |
| 1.  bisects ∠*DGF* | 1. Given |
| 2. *m*∠3 = *m*∠2 | 2. Definition of Angle Bisector |
| 3. *m*∠3 = *m*∠1 | 3. Vertical Angles Theorem |
| 4. *m*∠1 = *m*∠2 | 4. Transitive Property |
| 5. ∠1 ≅ ∠2 | 5. Definition of Congruent Angles |

 | Shape  Description automatically generated with medium confidence |
| **Given:** ∠3 ≅ ∠4**Prove:** ∠1 ≅ ∠2

| Statement: | Reason: |
| --- | --- |
| 1. ∠3 ≅ ∠4 | 1. Given |
| 2. ∠1 and ∠3 make a linear pair | 2. Given |
| 3. ∠4 and ∠2 make a linear pair | 3. Given |
| 4. *m*∠1 + *m*∠3 = 180° | 4. Definition of Linear Pair |
| 5. *m*∠4 + *m*∠2 = 180° |  5. Definition of Linear Pair |
| 6. *m*∠1 + *m*∠3 = *m*∠4 + *m*∠2 | 6. Transitive Property |
| 7. *m*∠1 + *m*∠3 = *m*∠3 + *m*∠2 | 7. Substitution Property |
| 8. *m*∠1 = *m*∠2 | 8. Subtraction Property |
| 9. ∠1 ≅ ∠2 | 9. Definition of Congruent Angles |

 | Shape  Description automatically generated with medium confidence |
| **Given:** ∠1 ≅ ∠4**Prove:** ∠2 ≅ ∠3

| Statement: | Reason: |
| --- | --- |
| 1. ∠1 ≅ ∠4 | 1. Given |
| 2. ∠1 and ∠2 are vertical angles | 2. Given |
| 3. ∠3 and ∠4 are vertical angles | 3. Given |
| 4. *m*∠2 = *m*∠1  | 4. Vertical Angles Theorem |
| 5. *m*∠4 = *m*∠3 | 5. Vertical Angles Theorem |
| 6. *m*∠2 = *m*∠3 | 6. Transitive Property |
| 7. ∠2 ≅ ∠3 | 7. Definition of Congruent Angles |

  | Shape  Description automatically generated with medium confidence |
| **Given:** 3*x* – 6 = *x* + 12**Prove:** *x* = 9

| Statement: | Reason: |
| --- | --- |
| 1. 3*x* – 6 = *x* + 12 | 1. Given |
| 2. 3*x* = *x* + 12 + 6 | 2. Addition Property |
| 3. 3*x* – *x* = 18 | 3. Subtraction Property |
| 4. 2*x* = 18 | 4. Subtraction Property |
| 5. *x* = 9 | 5. Division Property |

 |  |
| **Given:**  **Prove:**

| Statement: | Reason: |
| --- | --- |
| 1.  | 1. Given |
| 2.  | 2. Given |
| 3.  | 3. Segment Addition Postulate |
| 4.  | 4. Segment Addition Postulate |
| 5.  | 5. Substitution Property |
| 6.  | 6. Substitution Property |
| 7.  | 7. Subtraction Property |

 |    A black background with a black square  AI-generated content may be incorrect. |