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| **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. |