1. Given: 

Prove:.

*V*

*W*

*X*

*Y*

*Z*

2. Given: , , and .

 Prove: .



3. Given: ,

Prove:  is the midpoint of .

4. Given: 

Prove: 

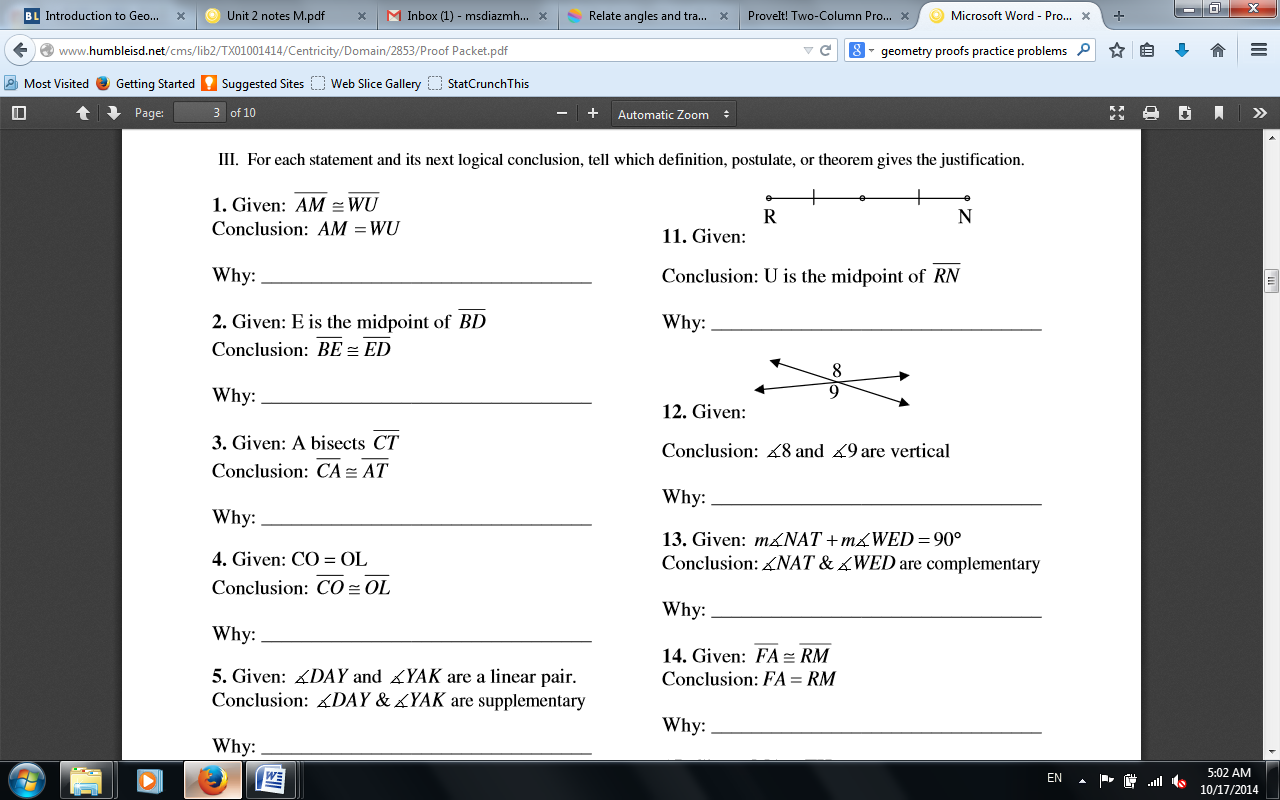
5. Given: are vertical angles;  are a linear pair

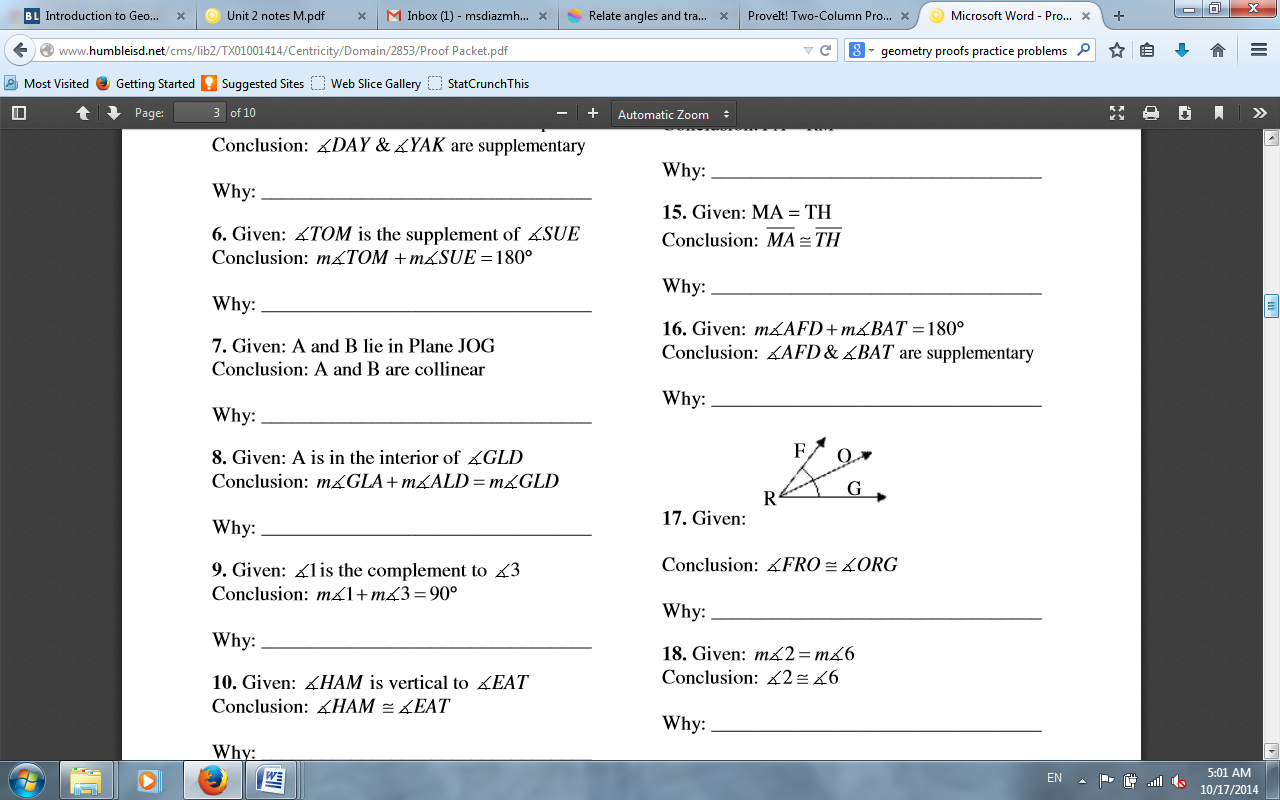
Prove:  are supplementary angles.



6. Given:  are a linear pair;

Prove: **





Answer Key

1. Given: 

Prove:.

*V*

*W*

*X*

*Y*

*Z*

|  |  |
| --- | --- |
| Statements | Reasons |
|  | 1. Given 2. Segment Addition 3. Transitive Property |

2. Given: , , and .

 Prove: .

|  |  |
| --- | --- |
| Statements | Reasons |
| 4. JK = 2IL 5. JI = 2IL 6. 1/2JI = IL | 1. Given 2. Definition of Congruence 3. Substitution 4. Simplifying (Combining Like Terms) 5. Substitution 6. Division Property of Equality |

3. Given: ,

Prove:  is the midpoint of .

|  |  |
| --- | --- |
| Statements | Reasons |
| 2. 2VX = VZ 3. VZ = VX + XZ 4. 2VX = VX + XZ 5. VX = XZ 7. X is the midpoint of | 1. Given 2. Multiplication Property of Equality 3. Segment Addition 4. Transitive Property 5. Subtraction Property of Equality 6. Definition of Congruence 7. Definition of Midpoint |

1. Given: 

Prove: 

|  |  |
| --- | --- |
| Statements | Reasons |
|  | 1. Given 2. Angle Addition 3. Substitution 4. Transitive Property |

1. Given: are vertical angles;  are a linear pair

Prove:  are supplementary angles.

|  |  |
| --- | --- |
| Statements | Reasons |
| 1. are vertical angles   are linear pair      4. are supplementary angles | 1. Given 2. Definition of vertical angles 3. Definition of linear pair 4. Substitution 5. Definition of Supplementary Angles |

6. Given:  are a linear pair;

Prove: **

|  |  |
| --- | --- |
| Statements | Reasons |
| 1. are linear pair, 2. m 3. m 4. m | 1. Given 2. Definition of Linear Pair 3. Substitution 4. Subtraction Property of Equality |

1. Given: 

Prove: 

|  |  |
| --- | --- |
| Statements | Reasons |
|  | 1. Given 2. Angle Addition 3. Substitution 4. Transitive Property |

1. Given: are vertical angles;  are a linear pair

Prove:  are supplementary angles.

|  |  |
| --- | --- |
| Statements | Reasons |
| 1. are vertical angles   are linear pair      4. are supplementary angles | 1. Given 2. Definition of vertical angles 3. Definition of linear pair 4. Substitution 5. Definition of Supplementary Angles |

6. Given:  are a linear pair;

Prove: **

|  |  |
| --- | --- |
| Statements | Reasons |
| 1. are linear pair, 2. m 3. m 4. m | 1. Given 2. Definition of Linear Pair 3. Substitution 4. Subtraction Property of Equality |

Answer Key

1. Given: 

Prove:.

*V*

*W*

*X*

*Y*

*Z*

|  |  |
| --- | --- |
| Statements | Reasons |
|  | 1. Given 2. Segment Addition 3. Transitive Property |

2. Given: , , and .

 Prove: .

|  |  |
| --- | --- |
| Statements | Reasons |
| 4. JK = 2IL 5. JI = 2IL 6. 1/2JI = IL | 1. Given 2. Definition of Congruence 3. Substitution 4. Simplifying (Combining Like Terms) 5. Substitution 6. Division Property of Equality |

3. Given: ,

Prove:  is the midpoint of .

|  |  |
| --- | --- |
| Statements | Reasons |
| 2. 2VX = VZ 3. VZ = VX + XZ 4. 2VX = VX + XZ 5. VX = XZ 7. X is the midpoint of | 1. Given 2. Multiplication Property of Equality 3. Segment Addition 4. Transitive Property 5. Subtraction Property of Equality 6. Definition of Congruence 7. Definition of Midpoint |