Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ www.danielselements.weebly.com

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| **Key Concepts** | **Notes** |
| Properties of Equality | Let a, b, and c be any real numbers. |
| Addition Property | If a = b, then \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| Subtraction Property | If a = b, then \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| Multiplication Property | If a = b, then \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| Division Property | If a = b and \_\_\_\_\_\_\_\_\_, then \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| Reflexive Property |  |
| Symmetric Property | If a = b, then \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| Transitive Property | If a = b and \_\_\_\_\_\_\_\_, then \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| Substitution Property | If a = b, then \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| Distributive Property |  |
| **PROBLEM** | What is the value of x? Justify each step. |
| Properties of Congruence |  |
| Reflexive Property |  |
| Symmetric Property |  |
| Transitive Property |  |
| **PROBLEM** | What is the name of the property of equality or congruence that justifies going from the first statement to the second statement?a. 2x + 9 = 19 b. ∠O ≅ ∠W and ∠W ≅ ∠L c. *m*∠E = *m*∠T 2x = 10 ∠O ≅ ∠L  *m*∠T = *m*∠E |
| Two-Column Proof**PROBLEM** |  |

**APPLICATION**

1. What is the value of x? Justify each step.

Given: $\vec{AB}$ bisects ∠*RAN*

1. What is the name of the property of equality or congruence that justifies going from the first statement to the second statement?
2. Complete the reasons in the given two-column proof.

Statements Reasons

1. $\overbar{AB}$ ≅ $\overbar{CD}$ 1)
2. $AB=CD$ 2) Definition of ≅
3. $BC=BC$ 3)
4. $AB+BC=BC+CD$ 4)
5. $AB+BC=AC$ 5)

*BC* + *CD* = *BD*

1. *AC* = *BD* 6)
2. $\overbar{AC}$ ≅ $\overbar{BD}$ 7) Definition of ≅