

- 5. Transitive
- 4. Symmetric
- 3. Subtraction
- 2. Reflexive
- 1. Substitution

# GEOMETRY

The Complete Course

Lesson Four

## Preparing Logical Reasons For A Two-Column Proof

KA8464

## Worksheet

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## I. VIDEOTAPE FOLLOW-UP QUESTIONS

### I. Introduction.

### II. Properties.

#### A. Properties of equality for real numbers

1. Addition property
2. Subtraction property
3. Multiplication property
4. Division property
5. Substitution property
6. Reflexive property
7. Symmetric property
8. Transitive property

#### B. Properties of congruence for line segments and angles

1. Reflexive property
2. Symmetric property
3. Transitive property

### III. Postulates for points, lines and planes.

- A. A line contains at least two points. A plane contains at least three non-collinear points. Space contains at least four noncoplanar points. (P4-1)
- B. If two distinct points are given, then a unique line contains them. (P4-2)
- C. Through any three points there is at least one plane, and through any three non-collinear points there is exactly one plane. (P4-3)
- D. If two points are in a plane, then the line that contains those points lies entirely in the plane. (P4-4)
- E. If two distinct planes intersect, then their intersection is a line. (P4-5)

### IV. Theorems related to points, lines and planes.

- A. If two distinct lines intersect, then they intersect in exactly one point. (T4-1)
- B. If there is a line and a point not in the line, then there is exactly one plane that contains them. (T4-2)
- C. If two distinct lines intersect then they lie in exactly one plane. (T4-3)
- D. If a line intersects a plane, but is not contained in the plane, then the intersection is exactly one point. (T4-4)

## II. SUPPLEMENTARY EXERCISES

**1-5 Justify each of the following statements with a property of equality or congruence.**

1. If  $\angle A \cong \angle M$  and  $\angle K \cong \angle M$ , then  $\angle A \cong \angle K$

2.  $\overline{CD} \cong \overline{CD}$

3. If  $m\angle 1 + m\angle 3 = m\angle 2 + m\angle 3$ , then  $m\angle 1 = m\angle 2$

4. If  $m\angle A = 3x$ , then  $3x = m\angle A$ .

5. If  $\overline{AB} \cong \overline{MN}$  and  $\overline{MN} \cong \overline{XY}$ , then  $\overline{AB} \cong \overline{XY}$ .