2.3 Algebra Proofs Name: _____

Pre AP Geometry

EXPLORE/EXPLAIN

1. Use the properties below to justify the next step in each of the equations.

Transitive	Multiplication Property of Equality (MPOE)
Substitution	Addition (APOE)
Distributive	Subtraction (SPOE)
	Division (DPOE)

A) If $3x - 7 = 14$, then_____ by_____.

B) If $5x + 5 = 10$, then_____ by_____

C) If $\frac{1}{2}x = 3$, then_____by_____.

D) If $5x = 20$, then_____by_____.

E) If $3(x + 2) = 1$, then_____by_____.

F) If $m\angle 1 + m\angle 2 = m\angle 3$ and $m\angle 2 = 30°$, then_____by_____.

G) If $\angle 1 \cong \angle 2$, and $\angle 2 \cong \angle 3$, then _____by _____.

2. Algebraic Proof: Fill in the reason for each step.

A) $2x - 7 = \frac{1}{3}x - 2$ A) Given

B) $3(2x - 7) = 3(\frac{1}{3}x - 2)$ B)_____

C) $6x - 21 = x - 6$ C)_____

D) $5x - 21 = -6$ D)_____

E) $5x = 15$ E)_____

F) $x = 3$ F)_____

What is the difference between Substitution and Transitive?

Name the algebraic property:

_____1. If AB = BC and BC = CD, then AB = CD.

_____2. If AB = CD, then AB + XY = CD + XY.

_____3. If $m\angle 1 + m\angle 4 = 48°$ and $m\angle 4 = m\angle 3$, then $m\angle 1 + m\angle 3 = 48°$.

_____4. If HN = YT, then HN – AB = YT – AB.

_____5. If $\overline{HG} \cong \overline{CD}$, and $\overline{CD} \cong \overline{LO}$, then $\overline{HG} \cong \overline{LO}$.

_____6. If CD = EF, then CD – PQ = EF – PQ.

_____7. If $m\angle 1 + 15° = 105°$, then the $m\angle 1 = 90°$.

Proof Practice:

8) 3(5b + 1) = 93

_____ _____

_____ _____

_____ _____

9) 2x + 5 = 20 – 3x

_____ _____

_____ _____

_____ _____

10) 3(2x + 8) = 4(x + 1)

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