

HW
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even

Geometry

Chapter 2
Section 2-5



Vocabulary

Proof	Convincing argument using deductive reasoning
Two-Column Proof	Proof that lists all statements in left column and justification for each statement in the right column.

Algebra Concepts

Addition Property

If $a = b$, then $a + c = b + c$.

Subtraction Property

If $a = b$, then $a - c = b - c$.

Multiplication Property

If $a = b$, then $a \cdot c = b \cdot c$.

Division Property

If $a = b$ and $c \neq 0$, then $\frac{a}{c} = \frac{b}{c}$.

Reflexive Property

$a = a$

Symmetric Property

If $a = b$, then $b = a$.

Transitive Property

If $a = b$ and $b = c$, then $a = c$.

Substitution Property

If $a = b$, then b can replace a in any expression.

Algebra Concepts

Distributive Property

Sum:

$$a(b + c) = a(b + c) = ab + ac$$

Difference:

$$a(b - c) = a(b - c) = ab - ac$$

Algebra Concepts Applied to Geometry

Reflexive Property

$$\overline{AB} \cong \overline{AB} \quad \angle A \cong \angle A$$

Symmetric Property

If $\overline{AB} \cong \overline{CD}$, then $\overline{CD} \cong \overline{AB}$.

If $\angle A \cong \angle B$, then $\angle B \cong \angle A$.

Transitive Property

If $\overline{AB} \cong \overline{CD}$ and $\overline{CD} \cong \overline{EF}$, then $\overline{AB} \cong \overline{EF}$.

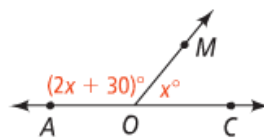
If $\angle A \cong \angle B$ and $\angle B \cong \angle C$, then $\angle A \cong \angle C$.

If $\angle B \cong \angle A$ and $\angle B \cong \angle C$, then $\angle A \cong \angle C$.

Justifying Steps of an Equation

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

$\angle AOM$ and $\angle MOC$ are supplementary. \triangle that form a linear pair are supplementary.



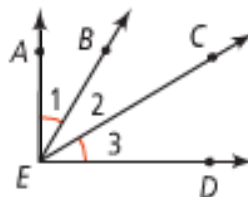
$m\angle AOM + m\angle MOC = 180$	Definition of supplementary \triangle
$(2x + 30) + x = 180$	Substitution Property
$3x + 30 = 180$	Distributive Property
$3x = 150$	Subtraction Property of Equality
$x = 50$	Division Property of Equality

Proofs

Given: $m\angle 1 = m\angle 3$

Prove: $m\angle AEC = m\angle DEB$

$m\angle 1 = m\angle 3$	Given
$m\angle 2 = m\angle 2$	Reflexive Property of Equality
$m\angle 1 + m\angle 2 = m\angle 3 + m\angle 2$	Addition Property of Equality
$m\angle 1 + m\angle 2 = m\angle AEC$	Angle Addition Postulate
$m\angle 3 + m\angle 2 = m\angle DEB$	
$m\angle AEC = m\angle DEB$	Substitution



Homework

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