Geometry

2.5 Reasoning Using Properties from Algebra

variables

Real numbers

Segment length and angle measure are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ just like \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, so you can solve \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ from geometry using \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ from algebra to justify each step.

properties

equations

|  |  |
| --- | --- |
| Property of Equality | Example |
| Reflexive | a = a |
| Symmetric | a = b, then b = a |
| Transitive | a = b and b = c, then a = c |
| Add and Subtract | If a = b, then a+c= b+c |
| Multiply and divide | If a = b, then ac = bc |
| Substitution | If a = b, then a may be replaced by b in any equation or expression |  |
| Distributive | a(b + c) = ab + ac |

Name the property of equality the statement illustrates.

If m∠6 = m∠7, then m∠7 = m∠6.

Symmetric

If JK = KL and KL = 12, then JK = 12.

Transitive

m∠W = m∠W

Reflexive

Solve the equation and write a reason for each step

14x + 3(7 – x) = -1

14x + 21 – 3x = -1 distributive

11x + 21 = -1 definition of add (optional step)

11x = -22 subtraction

x = -2 division

Solve A = ½ bh for b.

A = ½ bh

2A = bh multiplication

2A/h = b division

b = 2A/h symmetric

Given: m∠ABD = m∠CBE

A

C

D

E

B

1

2

3

Show that m∠1 = m∠3

m∠ABD = m∠CBE (given)

m∠ABD = m∠1 + m∠2 (angle addition post.)

m∠CBE = m∠2 + m∠3 (angle addition post.)

m∠1 + m∠2 = m∠2 + m∠3 (substitution)

m∠1 = m∠3 (subtraction)

Assignment: 108 #4-34 even, 39-42 all = 20 total

Extra Credit: 111 #2, 4 = +2