

2-5 Practice

Form G

Reasoning in Algebra and Geometry

Fill in the reason that justifies each step.

1. $0.25x + 2x + 12 = 39$	Given
$2.25x + 12 = 39$	a. ?
$2.25x = 27$	b. ?
$225x = 2700$	c. ?
$x = 12$	d. ?

2. Given: $m\angle ABC = 80$

$m\angle ABD + m\angle DBC = m\angle ABC$

Angle Addition Postulate

$(3x + 3) + (6x + 5) = 80$

Substitution Property

$9x + 8 = 80$

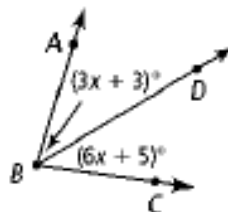
a. ?

$9x = 72$

b. ?

$x = 8$

c. ?



3. Given: $KL = 3(PM)$

$5x = 3(2x - 4)$

Substitution Property

$5x = 6x - 12$

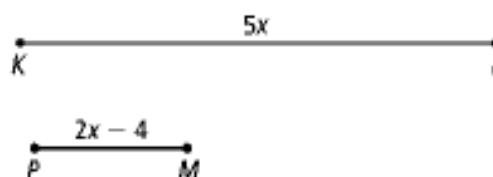
a. ?

$-x = -12$

b. ?

$x = 12$

c. ?



4. Given: $XY = YZ$

$8m + 5 = 6m + 17$

Substitution Property

$2m + 5 = 17$

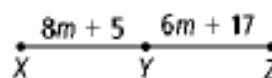
a. ?

$2m = 12$

b. ?

$m = 6$

c. ?



Name the property of equality or congruence that justifies going from the first statement to the second statement.

5. $\overline{XY} \cong \overline{TZ}$
 $\overline{TZ} \cong \overline{XY}$

6. $3(x + 2) = 15$
 $3x + 6 = 15$

7. $4n + 6 - 2n = 9$
 $2n + 6 = 9$

8. $\angle A \cong \angle B$ and $\angle B \cong \angle C$
 $\angle A \cong \angle C$

2-5

Practice (continued)

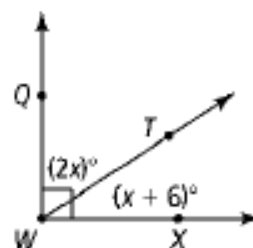
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Reasoning in Algebra and Geometry

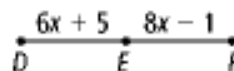
9. Write a two-column proof.

Given: $\angle QWT$ and $\angle TWX$ are complementary.Prove: $x = 28$

Statements	Reasons
1) $\angle QWT$ and $\angle TWX$ are complementary	1) ?
2) $m\angle QWT + m\angle TWX = 90$	2) ?
3) $2x + x + 6 = 90$	3) ?
4) $3x + 6 = 90$	4) ?
5) $3x = 84$	5) ?
6) $x = 28$	6) ?



10. Developing Proof Fill in the missing statements or reasons for the two-column proof.

Given: E is the midpoint of $\overline{DF}$.Prove: $DE = 23$ 

Statements	Reasons
1) E is the midpoint of $\overline{DF}$.	1) ?
2) ?	2) Definition of midpoint
3) $6x + 5 = 8x - 1$	3) ?
4) $5 = 2x - 1$	4) ?
5) ?	5) Addition Property of Equality
6) ?	6) Division Property of Equality
7) $DE = 6x + 5$	7) Given
8) $DE = 6(3) + 5$	8) ?
9) $DE = 23$	9) ?

11. Write a two-column proof.

Given: $m\angle PMN = m\angle RBC$ Prove: $m\angle ABR + m\angle PMN = m\angle ABC$ 