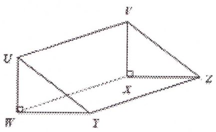
Geometry CP
Chapter 2 Practice Test, Fall 2013

Name: Answer Key Date: ________ Period: ______

Show your work where needed and write the answer in the space provided.

1) *In the figure below, points* W, X, Y, *and* Z *lie on plane* ***WXY****. State the postulate that can be used to show that the statement below is true.*

X and *Y* are collinear.

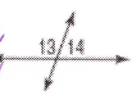


a. If two lines intersect, then their intersection is exactly one point.
b. A line contains at least two points. Since only two points are involved, this is not the answer.
c. If two points lie in a plane, then the entire line containing those points lies in that plane.
d. Through any two points there is exactly one line.

In #2 – 4, find the measure of each numbered angle.

2) m∠13= 4x + 11; m∠14=3x + 1

∠13+∠14 form a linear pair; they are, therefore, supplementary (i.e. they add up to 180°)



$m\angle 13 + m\angle 14 = 180$
$4x + 11 + 3x + 1 = 180$
$7x + 12 = 180$
$-12 \quad -12$
$7x = 168$
$x = 24$

$m\angle 13 = 4x + 11$
$4(24) + 11$
$96 + 11$
107

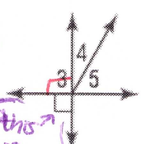
180
-107
73

you can also plug x into both expressions & simplify

m∠13: 107 m∠14: 73

3) m∠4= 3x –8; m∠5 = 7x – 12

∠3 is a right ∠, so ∠4+∠5 form a right ∠; therefore, they add up to 90°.



Since this angle is a right angle, ∠3 is also a right ∠ since they form a linear pair

$m\angle 4 + m\angle 5 = 90$
$3x - 8 + 7x - 12 = 90$
$10x - 20 = 90$
$+20 \quad +20$
$10x = 110$
$x = 11$

$m\angle 4 = 3x - 8$
$3(11) - 8$
$33 - 8$
25

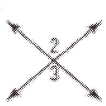
$90 - 25 = 65$

You can also plug x into both expressions and simplify.

m∠3: 90 m∠4: 25 m∠5: 65

4) m∠2= 4x – 26; m∠3= 3x + 4

∠2+∠3 are vertical ∠s; therefore, they are congruent, so they have the same measure; therefore, they are equal to each other.



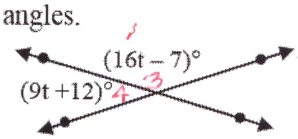
$m\angle 2 = m\angle 3$
$4x - 26 = 3x + 4$
$-3x \quad -3x$
$x - 26 = 4$
$+26 \quad +26$
$x = 30$

$m\angle 2 = 4x - 26$
$4(30) - 26$
$120 - 26$
94

Since these are congruent, you only need to find one of the measures; it doesn't matter which one.

m∠2: 94 m∠3: 94

5) The runways at an airport intersect as shown. The measure of ∠3 at the intersection is (16*t* – 7)° and the measure of ∠4 is (9*t* + 12)°. Find the measure of both angles.



$m\angle 3 + m\angle 4 = 180$
$16t - 7 + 9t + 12 = 180$
$25t + 5 = 180$
$-5 \quad -5$
$25t = 175$
$t = 7$

∠3+∠4 form a linear pair; therefore, they are supplementary, so they add up to 180°.

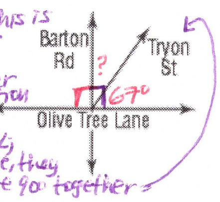
$m\angle 3 = 16t - 7$
$16(7) - 7$
105

$m\angle 4 = 180 - 105$
75

m∠3: 105 m∠4: 75

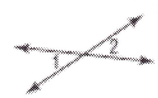
6) Refer to the figure below. Barton Road and Olive Tree Lane form a right angle at their intersection. Tryon Street forms a 67° angle with Olive Tree Lane. What is the measure of the acute angle Tryon Street forms with Barton Road? 23°

Since this is a right angle, the other intersection is also a right ∠; therefore, they measure 90° together.



$90 - 67$
23

7) The figure to the right shows the intersection of two tracks at a junction.



A) Are the angles at the intersection given by ∠1 and ∠2 congruent? Yes

B) How do you know? ∠1 and ∠2 are vertical ∠s.

8) Determine whether the following statements are always, sometimes, or never true.

A) Two angles that are complementary are supplementary. Never

The opposite (the converse) is never true either.

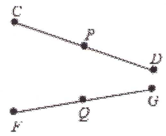
B) Supplementary angles are congruent. Sometimes

This would work if they are both right angles.

9) Use the reasons and statements bank below to complete the proof that follows. There is an extra option.

CP=PD	Definition of $\cong$ segments	Substitution	Substitution
$\overline{PD} \cong \overline{QG}$	Segment Addition Postulate	Definition of $\cong$ segments	FQ=QG

Given: $\overline{CP} \cong \overline{FQ}$; P is the midpoint of $\overline{CD}$; Q is the midpoint of $\overline{FG}$.
Prove: $\overline{PD} \cong \overline{QG}$

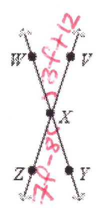


Statements	Reasons
1. $\overline{CP} \cong \overline{FQ}$ P is the midpoint of $\overline{CD}$ Q is the midpoint of $\overline{FG}$.	1. Given
2. $CP=FQ$	2. Def. of $\cong$ segments
3. CP=PD any order is fine FQ=QG	3.Definition of midpoint
4. $PD=FQ$	4. Substitution
5. $PD=QG$	5. Substitution
6. $\overline{PD} \cong \overline{QG}$	6. Def. of $\cong$ segments

10) $\overleftrightarrow{WY}$ and $\overleftrightarrow{VZ}$ intersect at point X, $m\angle WXV=3f+12$, and $m\angle ZXY= 7f-8$. Prove $f=5$.

$3f+12=7f-8$
$-7f \quad -7f$
$-4f+12=-8$
$-12 \quad -12$
$-4f=-20$
$\overline{-4} \quad \overline{-4}$
$f=5$

$3f+12=7f-8$
$-3f \quad -3f$
$12=4f-8$
$+8 \quad +8$
$20=4f$
$\overline{4} \quad \overline{4}$
$5=f$



Statements	Reasons
1. $\angle WXV$ and $\angle ZXY$ are vertical angles	1. Definition of Vertical angles
2. $\angle WXV \cong \angle ZXY$	2. Vertical $\angle$s theorem
3. $m\angle WXV = m\angle ZXY$	3.Definition of congruency
4. $m\angle WXV=3f+12$, and $m\angle ZXY= 7f-8$	4. Given
5. $3f+12=7f-8$	5. Substitution Prop. Of Equality
6. $-4f+12=-8$	6. Subtraction Prop
7. $-4f=-20$	7. Subtraction Prop
8. $f=5$	8. Division Prop.

Alternate answer:
6) $12=4f-8$ Subtraction Prop.
7) $20=4f$ Addition Prop.
8) $5=f$ Division Prop.
9) $f=5$ Symmetric Prop.

11) If $AB = 2BC$, then $AC = 3BC$.

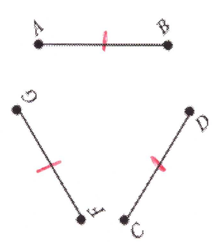
Statements	Reasons
1. $AB=2BC$	1. Given
2. $AC=AB + BC$	2. Segment Addition Postulate
3. $AC=2BC+BC$	3. Substitution
4. $AC=3BC$	4. substitution/simplify

12) *Write a two-column proof:*
If $12h-6=30$, then $h=3$

$12h-6=30$
$+6 \quad +6$
$12h=36$
$\overline{12} \quad \overline{12}$
$h=3$

Statements	Reasons
1) $12h-6=30$	1) Given
2) $12h=36$	2) Addition Property
3) $h=3$	3) Division Property

13) *Write a two-column proof.*
If $\overline{AB} \cong \overline{DC}$ and $\overline{DC} \cong \overline{FG}$ then $\overline{AB} \cong \overline{FG}$.



Statements	Reasons
1) $\overline{AB} \cong \overline{DC}$ (1st, 2nd) $\overline{DC} \cong \overline{FG}$ (2nd, 3rd)	1) Given
2) $\overline{AB} \cong \overline{FG}$ (1st, 3rd)	2) Transitive Property