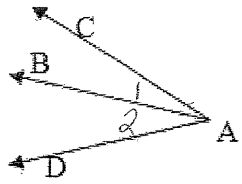
Name_____

CCGPS Analytic Geometry **Segments, Angles, and Parallel Lines Quiz Review** September 11, 2014 (Thurs)

1. AB bisects <CAD. If m<1 = 5x – 17 and m<2 = 3x + 13, find the value of x and m<CAD.



$5x-17 = 3x+13$

$2x = 30$

$x = 15$

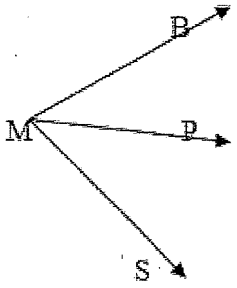
$m\angle CAB = 5(15) - 17$

$= 75 - 17$

$= 58 \times 2$

$m\angle CAD = 116^\circ$

2. MP bisects <BMS. If m<BMP = 2x + 9 and m<BMS = 7x – 3, find the value of x and m<PMS.



$2x+9+2x+9 = 7x-3$

$4x+18 = 7x-3$

$21 = 3x$

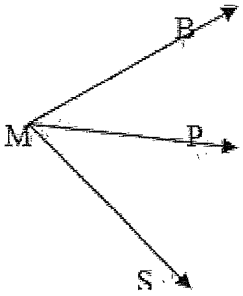
$7 = x$

$m\angle BMP = 2(7)+9$

$14+9 = 23$

$m\angle PMS = 23^\circ$

3. In the diagram to the right, $\overrightarrow{MP}$ is an angle bisector of ∠SMB. Find the below values if m ∠ SMP = $(4x + 27)^0$, and m ∠ PMB = $(15x - 6)^0$.



$4x+27 = 15x-6$

$33 = 11x$

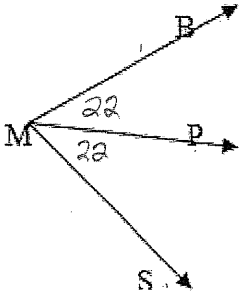
$3 = x$

$m\angle SMP = 4(3)+27$

$12+27$

x = 3 m ∠ PMB = 39° m ∠SMP = 39° m ∠SMB = 78°

4. In the diagram to the right, $\overrightarrow{MP}$ is an angle bisector of ∠SMB. Find the below values if m ∠ SMB = 44^0, and m ∠ PMB = $(3x - 8)^0$.



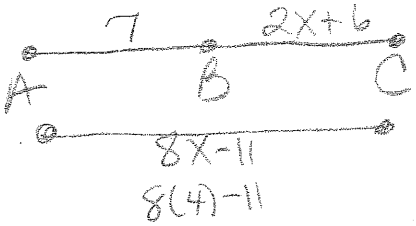
$3x-8 = 22$

$3x = 30$

$x = 10$

x = 10 m ∠ PMB = 22 m ∠SMP = 22

5. Points A, B, and C are collinear. Point B is between A and C. Solve for x. AB = 7, AC = 8x – 11, and BC = 2x + 6 . Find the information below (Graph the line and label points)

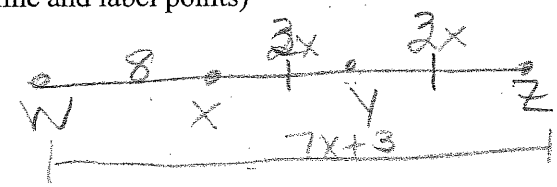


$7+2x+6=8x-11$
$2x+13=8x-11$
$24=6x$
$4=x$

$2(4)+6$

x = 4 AC = 21 BC = 14

6. Points W, X, Y, and Z are collinear. Point X is between W and Z. Also, Y is the segment bisector of segment XZ. WX = 8, XY = ~~2x~~ 3x, and WZ = 7x + 3. Find the below. (Graph the line and label points)

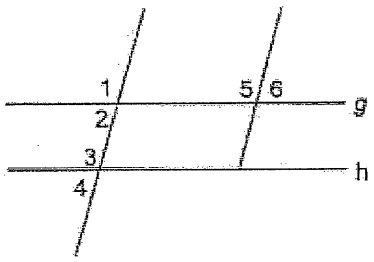


$8+4x=7x+3$
$5=3x$
$\frac{5}{3}=x$
$5=x$

x = 5 YZ = 15 WZ = 38

7.

Given: $\angle 1 \cong \angle 5$ and
Prove: $g \parallel h$ $\angle 5 \cong \angle 3$

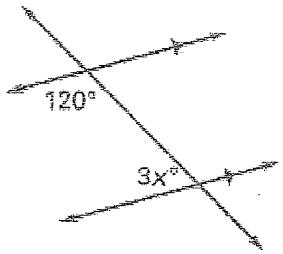


Statements	Reasons
1. $\angle 1 \cong \angle 5$	1. Given
2. $\angle 5 \cong \angle 3$	2. Given
3. $\angle 1 \cong \angle 3$	3. transitive
4. $g \parallel h$	4. corresp. $\angle$s converse

For # 8 – 12

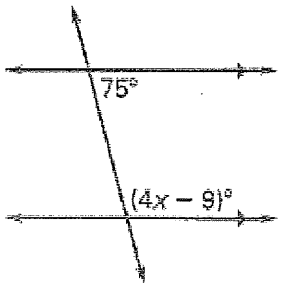
a) Identify the relationship between the 2 marked angles
b) Solve for the variables (x and/or y)
c) Identify the value of the marked measure angles

8.



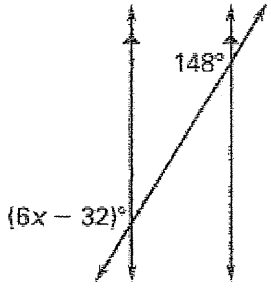
a) Consecutive interior ∠s
$120+3x=180$
$3x=60$
b) $x=20$
c) 60°

9.



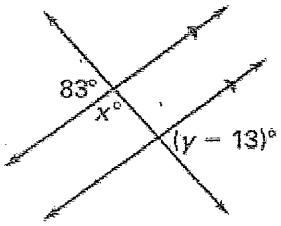
a) consecutive interior ∠s
b) $75+4x-9=180$
$4x+66=180$
$4x=114$
$x=28.5$
c) $4(28.5)-9=105^\circ$

10.



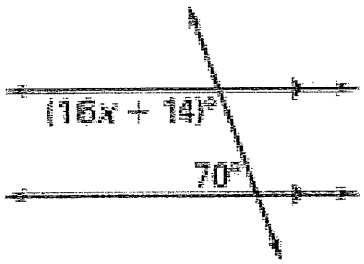
a) corresponding ∠s
b) $6x-32=148$
$6x=180$
$x=30$
c) $6(30)-32$
$180-32$
148°

11.



a) alternate exterior $(y-13)$
linear pair (x)
b) $83+x=180$
$x=97$
$83=y-13$
$96=y$
c) 97° & 83°

12.



a) consecutive interior ∠'s

b) $70 + 16x + 14 = 180$

$16x + 84 = 180$

$16x = 96$

$x = 6$

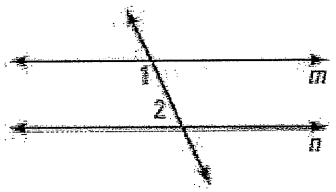
c) $16(6) + 14 = 110°$

13.

DEVELOPING PROOF Copy and complete the proof.

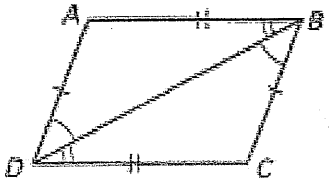
GIVEN ▶ $m\angle 1 = 115°$, $m\angle 2 = 65°$

PROVE ▶ $m \parallel n$



STATEMENTS	REASONS
1. $m\angle 1 = 115°$ and $m\angle 2 = 65°$	1. Given
2. $115° + 65° = 180°$	2. Addition
3. $m\angle 1 + m\angle 2 = 180°$	3. ? Substitution
4. $\angle 1$ and $\angle 2$ are supplementary.	4. ? def of supp.
5. $m \parallel n$	5. ? Consecutive ∠'s converse

14. Given the following diagram, answer the below:



a) Write a congruence statement (example: $\Delta ABC \cong \Delta XYZ$) $\Delta ABD \cong \Delta CDB$

b) Complete the statement:

i. $\overline{AD} \cong$ $\overline{CB}$

ii. $\overline{BD} \cong$ $\overline{BD}$

iii. $\angle ABD \cong$ $\angle CDB$

iv. $\Delta DBA \cong$ ΔBDC