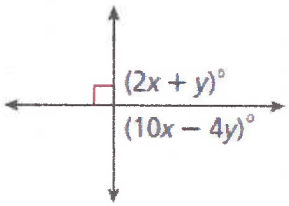
Bryant Geometry
Unit 3 Review – Part 2

Name: _____

Solve to find x and y in each diagram for problems 1-5 . Show all work.

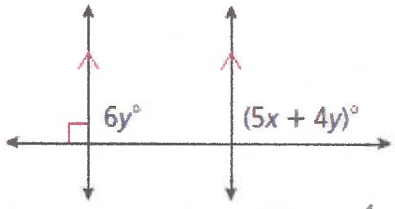
1)



$4\cdot(2x+y=90)$
$10x-4y=90$
$8x+4y=360$
$18x=450$
$x=25$

$2(25)+y=90$
$50+y=90$
$y=40$

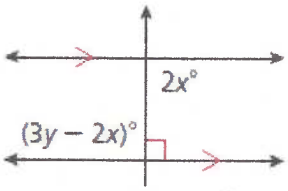
2)



$6y=90$
$y=15$

$5x+4y=90$
$5x+4(15)=90$
$5x=30$
$x=6$

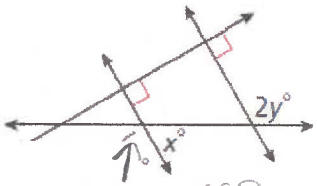
3)



$2x=90$
$x=45$

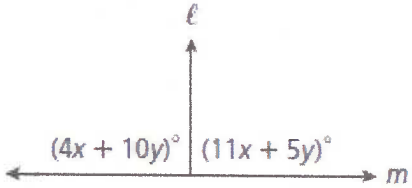
$3y-2x=90$
$3y-2(45)=90$
$3y=180$
$y=60$

4)



cut off?

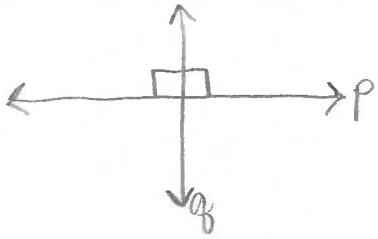
5) In the diagram, $\ell \perp m$. Find x and y.



$4x+10y=90$
$-2\cdot(11x+5y=90)$
$4x+10y=90$
$-22x-10y=-180$
$-18x=-90$
$x=5$

$4(5)+10(y)=90$
$10y=70$
$y=7$

6) Lines p and q together contain a linear pair in which the angles are congruent. What is the relationship between lines p and q? Illustrate with a picture.



The lines are perpendicular b/c the only measure for 2 congruent angles in a linear pair is 90°.

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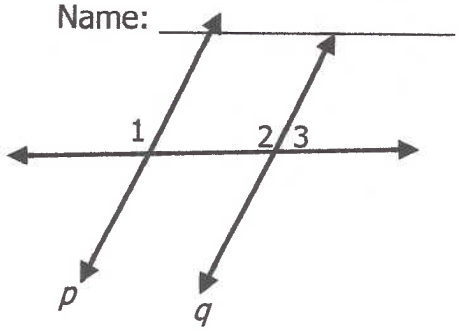
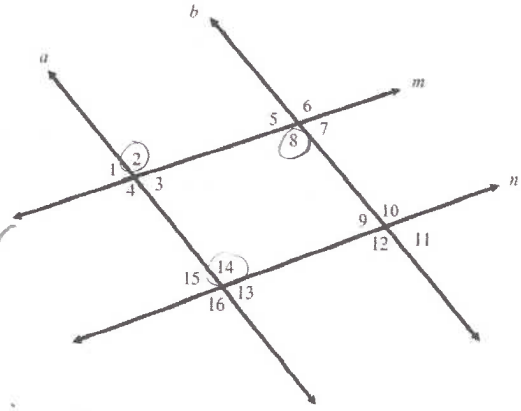
7) Given: p ∥ q, ∠2 and ∠3 are a linear pair

Prove: $m\angle 1 + m\angle 3 = 180°$



Statements	**Reasons**
1. p ∥ q	1. Given
2. ∠2 and ∠3 are a linear pair	2. Given
3. $m\angle 2 + m\angle 3 = 180°$	3. Def. of Linear pair
4. ∠1 & ∠2 are corresponding ∠s.	4. ∥ ⇒ corr. ∠'s ≅
5. $m\angle 1 + m\angle 3 = 180°$	5. Substitution

8) Which statements can prove *line m* is parallel to *line n*?



a. ∠2 ≅ ∠14 (Yes)

Why: Converse of Corr. ∠s Postulate

b. ∠5 ≅ ∠12 (No)

Why: S.S.I. must be supplementary in order for lines to be parallel.

c. ∠9 ≅ ∠11 (NO)

Why: Vertical angles do not prove parallel lines.

9) Which lines can be proven parallel given the following statements?

a. ∠8 ≅ ∠2

Why: Line b & Line a; Conv. Alt Int. ∠s Thm

b. $m\angle 4 + m\angle 7 = 180°$

Why: Line b & Line a; Conv. S.S.Ext. ∠s Thm