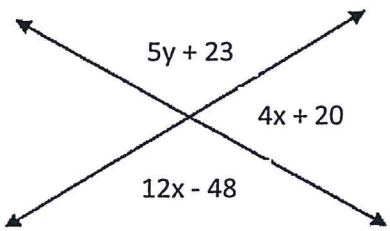
Unit 2 Test (PT) **Name:** Key **Date:** _____

1. Solve for x and y using properties of angles. **Justify every equation that you used.**



$12x - 48 + 4x + 20 = 180$ Linear Pairs add to 180°.

$x = 13$

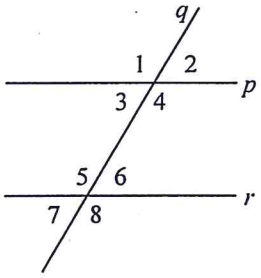
$12x - 48 = 5y + 23$ Vertical ∠s are ≅.

$y = 13$

2. Write two-column proof for the following.

Given: $p \parallel r$

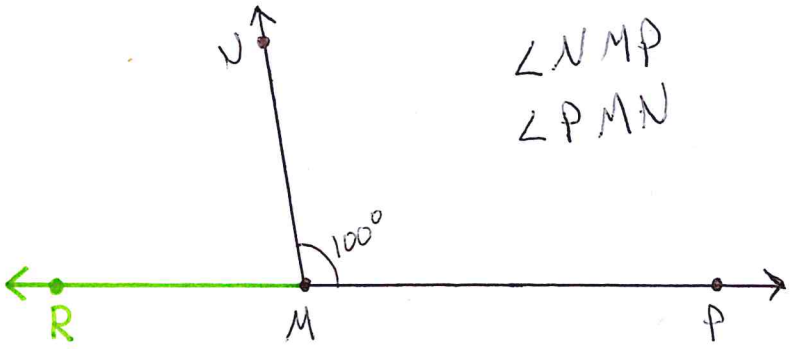
Prove: < 3 = <7



Statement	Reason
1.) p ∥ r	1.) Given
2.) ∠3 ≅ ∠2	2.) Vertical ∠s ≅
3.) ∠2 ≅ ∠7	3.) Alt. Ext. ∠s ≅
4.) ∠3 ≅ ∠7	4.) Substitution

3. Construct $\overrightarrow{MN}$ *and* $\overrightarrow{MP}$ so they create a 100° angle. Name the angle in 2 different ways.

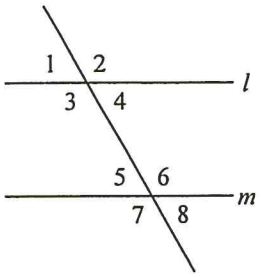
Create $\overrightarrow{MR}$ so that it is opposite *to* $\overrightarrow{MP}$. Classify <RMP.



∠NMP
∠PMN

∠RMP is a straight ∠.

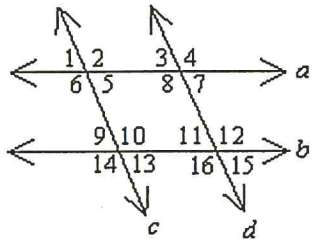
4. Find the value of the variable if $m \parallel l$, $m\angle 1 = 7x - 12$ and $m\angle 5 = 5x + 6$ Justify the equation.



$7x - 12 = 5x + 6$ Corresp. $\angle$'s $\cong$

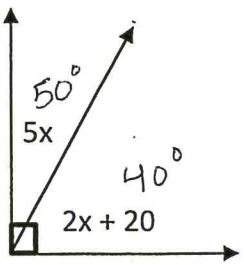
$x = 9$

5. If a // b and c // d, prove that $\angle 4 \cong \angle 10$



Statement	Reason
1.) a || b	1.) Given
2.) c || d	2.) Given
3.) $\angle 10 \cong \angle 12$	3.) Corresp. $\angle$'s $\cong$
4.) $\angle 4 \cong \angle 12$	4.) Corresp. $\angle$'s $\cong$
5.) $\angle 4 \cong \angle 10$	5.) Substitution

6. Determine the value of x and calculate the measure of the angles. **Justify the equation.**



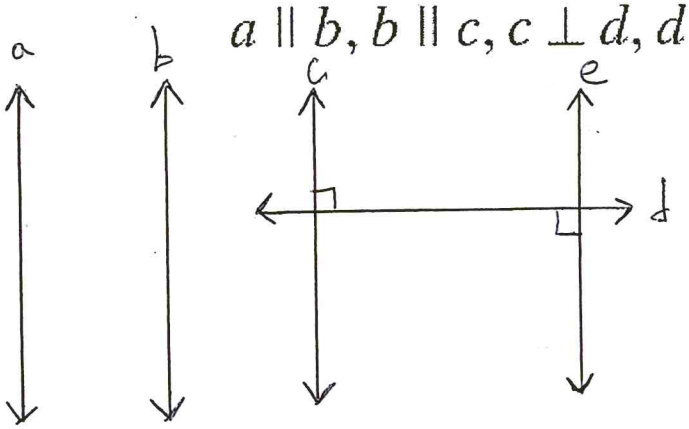
$5x + 2x + 20 = 90$ Complementary $\angle$'s add to 90

$x = 10$

$50° + 40°$

7. Construct lines a, b, c, d and e in the same plane. How are **a** and **e** related?

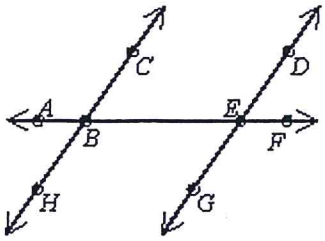
$a \parallel b, b \parallel c, c \perp d, d \perp e$



a || e

Multiple-Choice

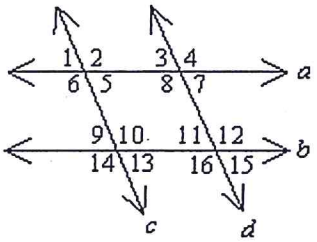
8. Identify 2 Same Side Interior Angles.



∠CBE + ∠DEB

∠HBE + ∠GEB

9. Identify 2 sets of Corresponding Angles.



∠1 + ∠9

∠6 + ∠14

∠2 + ∠10

∠5 + ∠13

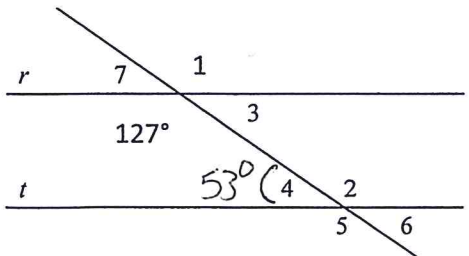
∠3 + ∠11

∠8 + ∠6

∠4 + ∠12

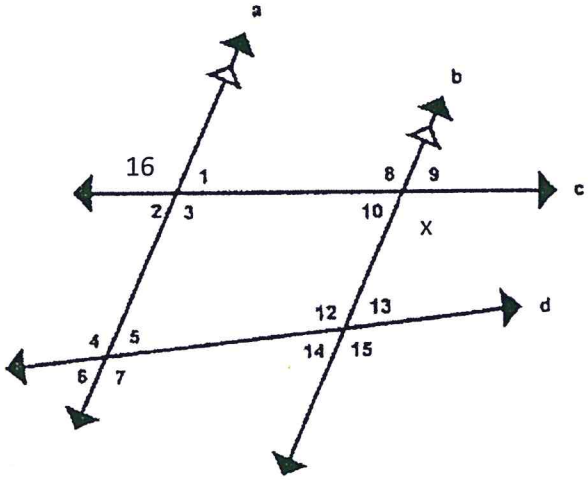
∠7 + ∠15

10. Line *r* is parallel to line *t*. Determine the $m\angle 4$ and the correct justification:



Same Side Int. ∠s are Supplementary.

11. Lines a, b, c and d are shown below and a // b. Name all angles that are supplementary to <x?



∠10

∠9

∠1

∠2

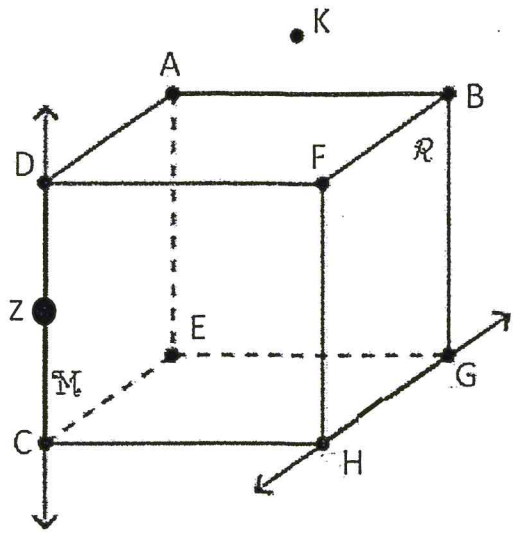
12. The midpoint of segment RQ is (-1, 0), point R is located at (-3, 4) the coordinates of endpoint Q are:

a) (-5, 8)

b) (-4, 1)

c) (1, 2)

d) (1, -4)



Use the above figure to answer the following questions.

13. Name for plane M in two different ways (left side of the box)

Plane CEAD

Plane DCE

14. Identify the pair if opposite rays.

a) $\overrightarrow{HG}$ and $\overrightarrow{GH}$
b) $\overrightarrow{DC}$ and $\overrightarrow{CD}$
c) $\overrightarrow{ZD}$ and $\overrightarrow{ZC}$
d) $\overrightarrow{DC}$ and $\overrightarrow{CD}$

15. Name the intersection of $\overrightarrow{DZ}$ and $\overrightarrow{EC}$

a) Point C
b) Points Z, C, E
c) Plane M
d) $\overrightarrow{ZC}$

16. Name 3 collinear points

a) Points K, B, G
b) Points D, C, Z
c) Points H, G, E
d) Points D, M, C