

NAME _____ KEY _____

SEGMENTS

#1 IF $\overline{DF} = 247$

$\overline{DE} = 3m - 25$

$\overline{EF} = 5m + 16$



$\overline{DE} + \overline{EF} = \overline{DF}$

$m = 32$

$3m - 25 + 5m + 16 = 247$

$\overline{DE} = 71$

$8m - 9 = 247$

$\overline{EF} = 176$

$8m = 256$

$m = 32$

#2 IF B IS MIDPOINT TO \overline{AC}

read carefully!



$\overline{AB} = 3y - 9$

$y = 17$

$\overline{AC} = 5y - 1$

$\overline{AB} = 42$

$2\overline{AB} = \overline{AC}$

$6y - 5y = -1 + 18$

$\overline{AC} = 84$

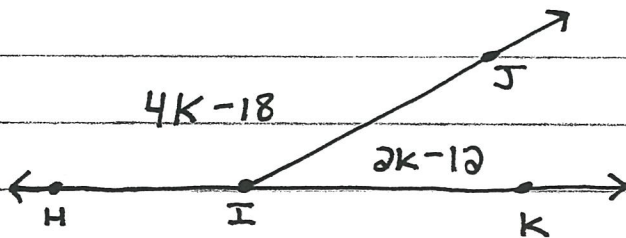
$2(3y - 9) = 5y - 1$

$y = 17$

$6y - 18 = 5y - 1$

ANGLES

#3



$k = 35$

$m\angle HIJ = 122^\circ$

$m\angle JIK = 58^\circ$

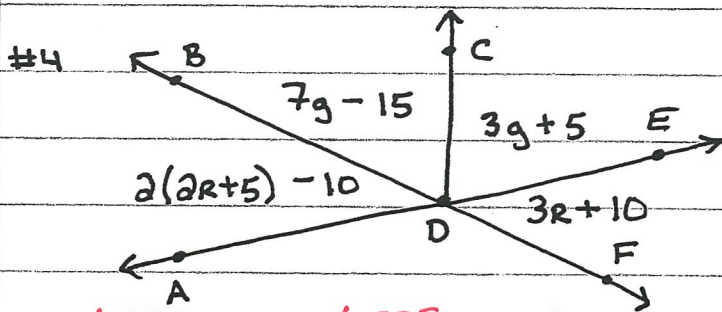
$m\angle HIJ + m\angle JIK = 180$

$4k - 18 + 2k - 12 = 180$

$6k - 30 = 180$

$k = 35$

$6k = 210$



$$R = 10$$

$$m \angle FDE = 40^\circ$$

$$m \angle BDE = 140^\circ$$

$$m \angle ADB = m \angle EDF$$

$$2(2r+5)-10 = 3r+10$$

$$4r+10-10 = 3r+10$$

$$4r = 3r+10$$

$$r = 10$$

$$m \angle BDC + m \angle CDE = 140^\circ \quad g = 15$$

$$7g-15 + 3g+5 = 140 \quad m \angle BDC = 90^\circ$$

$$10g - 10 = 140$$

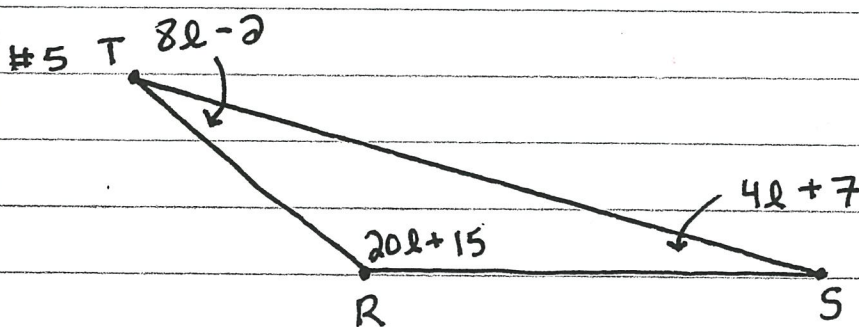
$$m \angle CDE = 50^\circ$$

$$10g = 150$$

$$m \angle ADC = 130^\circ$$

$$g = 15$$

TRIANGLES



$$m \angle R = 115^\circ$$

$$m \angle S = 27^\circ$$

$$m \angle T = 38^\circ$$

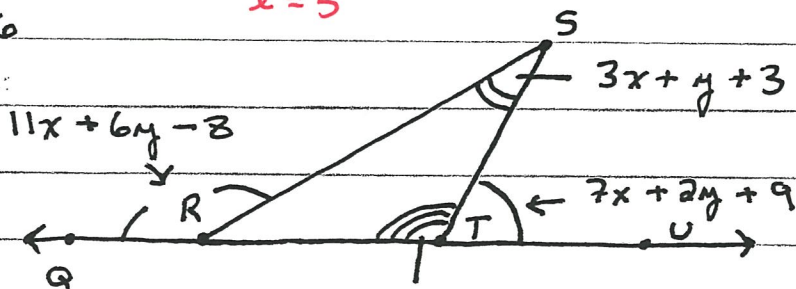
$$8l-2 + 20l+15 + 4l+7 = 180 \quad \text{: TRIANGLE SUM}$$

$$32l + 20 = 180$$

$$32l = 160$$

$$l = 5$$

#6



$$x = 7$$

$$y = 11$$

$$m \angle QRS = 135^\circ$$

$$m \angle S = 35^\circ$$

$$m \angle STU = 80^\circ$$

$$m \angle STQ = 100^\circ$$

EXTERIOR \angle THEOREM $2x + 8y - 2$ LINEAR PAIR

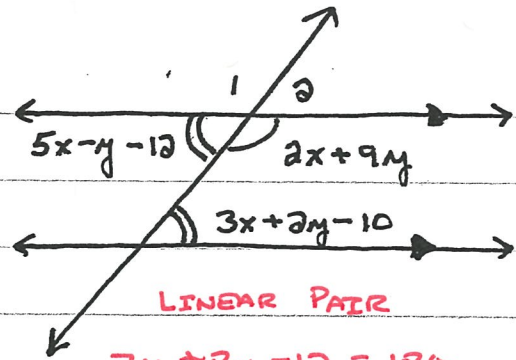
$$5x + 9y + 1 = 11x + 6y - 8$$

$$9x + 10y + 7 = 180$$

$$-6x + 3y = -9$$

$$9x + 10y = 173$$

#7

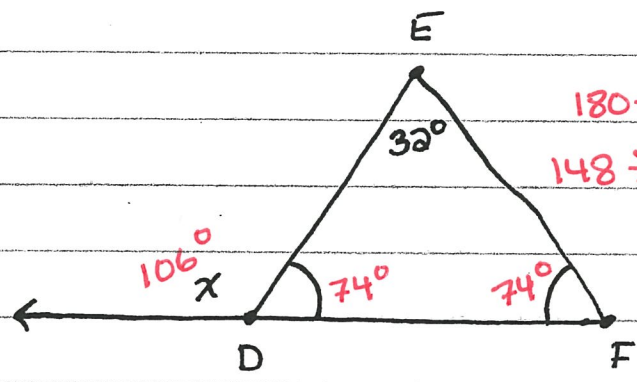


ALT. INT. \angle 'S
 $2x - 3y = 2$

LINEAR PAIR
 $7x + 8y - 12 = 180$
 $7x + 8y = 192$

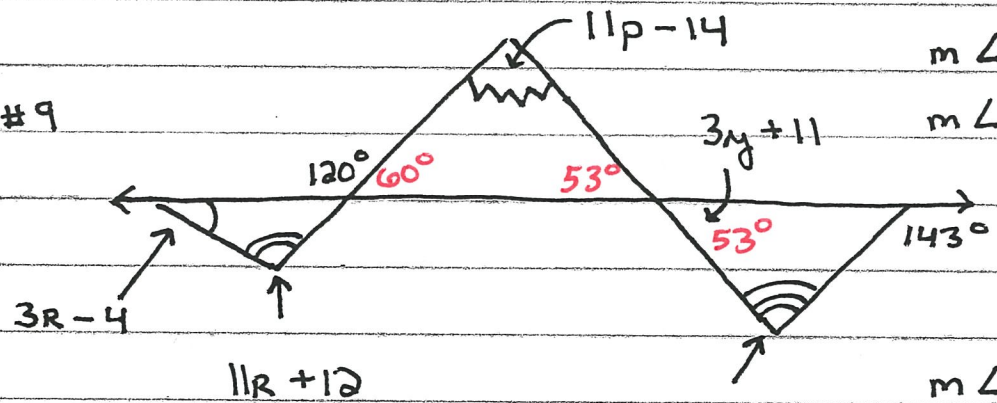
$x = 16$
 $y = 10$
 $m \angle 1 = 122^\circ$
 $m \angle 2 = 58^\circ$

#8



$180 - 32 = 148^\circ$
 $148 \div 2 = 74^\circ$
 $x = 106^\circ$
 $m \angle F = 74^\circ$

#9



$14R + 8 = 120$
 $14R = 112$
 $R = 8$

$12y - 25 = 143$
 $12y = 168$
 $y = 14$

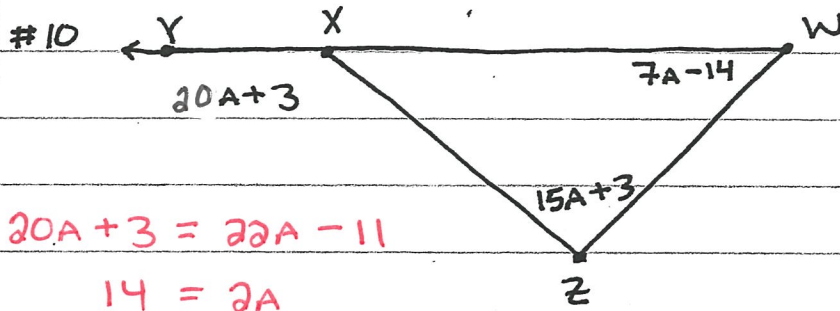
$m \angle 3R - 4 = 20^\circ$
 $m \angle 11R + 12 = 100^\circ$

$m \angle 3y + 11 = 53^\circ$
 $m \angle 9y - 36 = 90^\circ$

$m \angle 11p - 14 = 67^\circ$

$180^\circ - 60^\circ - 53^\circ = m \angle 11p - 14$
 $67^\circ = m \angle 11p - 14$

EXTERIOR ANGLE THEOREM



$$20A + 3 = 20A - 11$$

$$14 = 2A$$

$$7 = A$$

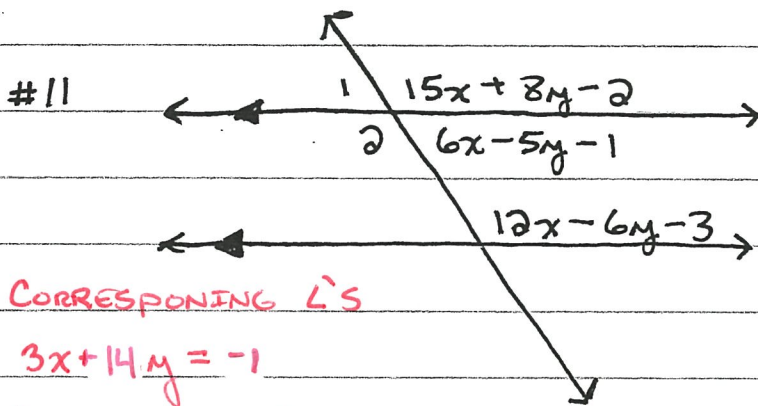
$$A = 7$$

$$m\angle W = 35^\circ$$

$$m\angle Z = 108^\circ$$

$$m\angle ZXY = 143^\circ$$

$$m\angle WXZ = 37^\circ$$



CORRESPONDING \angle 'S

$$3x + 14y = -1$$

CONSECUTIVE INTERIOR

$$18x - 11y - 4 = 180$$

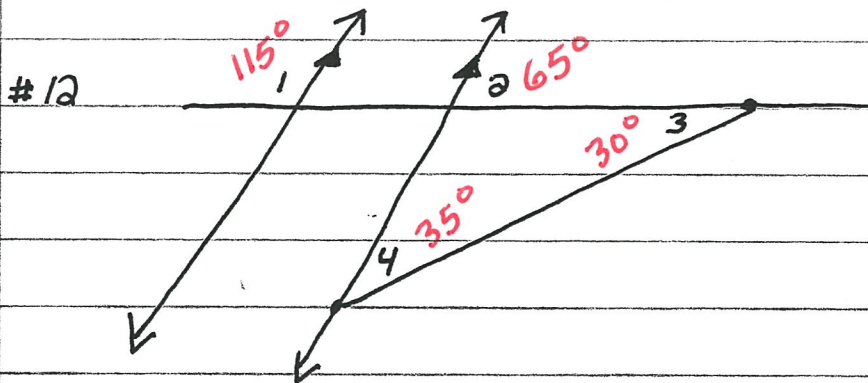
$$18x - 11y = 184$$

$$x = 9$$

$$y = -2$$

$$m\angle 1 = 63^\circ$$

$$m\angle 2 = 117^\circ$$



$$m\angle 1 = 115^\circ$$

$$m\angle 2 = 65^\circ$$

$$m\angle 3 = 30^\circ$$

$$m\angle 4 = 35^\circ$$

CONSECUTIVE EXTERIOR

$$\angle 1 = 3x + 5y - 13$$

$$\angle 2 = 2x + y + 10$$

$$5x + 6y - 3 = 180$$

$$5x + 6y = 183$$

$$x = 21$$

$$\angle 3 = 3x + y - 46$$

$$\angle 4 = x + 2y - 12$$

$$2x + y + 10 = 4x + 3y - 58$$

$$-2x - 2y = -68$$

$$y = 13$$

EXTERIOR ANGLE THEOREM


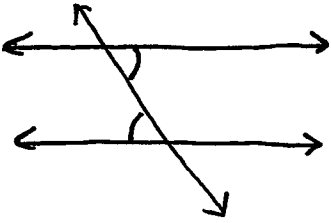
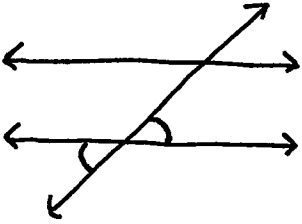
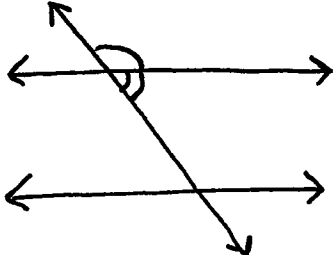
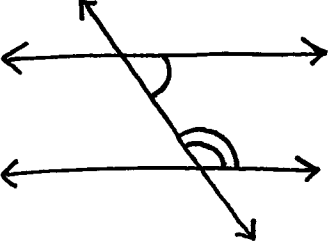
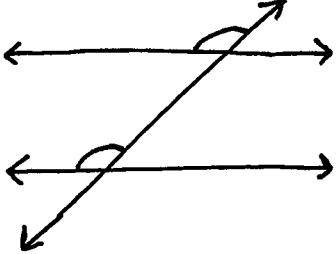
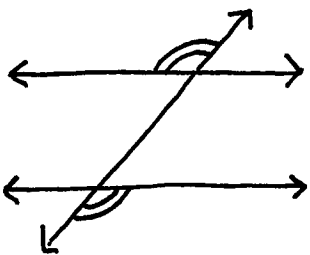
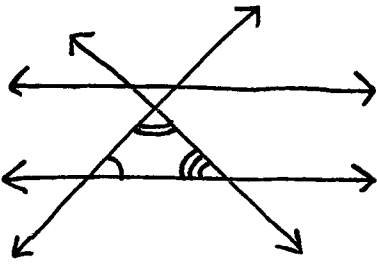
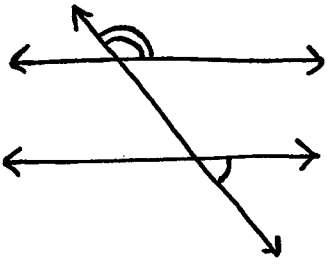
Name _____

Match the Vocabulary with the appropriate definition on the next page

1. K The lines will diverge on this side of the transversal
2. A Angle Sum for Triangle
3. E Consecutive Exterior
4. G Consecutive Interior
5. N Alternate Exterior
6. F Linear Pair
7. L Summit Angle
8. R Complementary angles
9. C Exterior Angle Theorem
10. U Transversal
11. P Supplementary angles
12. H The lines will converge on this side of the transversal
13. I Alternate Interior
14. J Angle Sum for Quadrilaterals
15. D Corresponding Angles
16. T Vertical Angles
17. Q Base Angles

- A. The **sum** of all interior angles in a triangle shall equal 180° .
- B. This occurs when an exact copy or duplicate of an expression or equation is created.
- C. The two angles farthest from the exterior of the triangle, when added together, will give you the value of the exterior angle.
- D. One uses this to describe any two angles on the **same side** of the transversal, in the **same position**, that will fall on different lines but will be congruent if the lines are parallel.
- E. Two angles on the **same side** of the transversal on the **outside** of the parallel lines will have a **supplementary** relationship.
- F. A set of angles that add up to 180° and will create a **line**.
- G. Two angles on the **same side** of the transversal on the **inside** of the parallel lines will have a **supplementary** relationship.
- H. This is the result of having a set of lines and a transversal where the **consecutive angles** are **less than 180°** .
- I. Two angles on the **opposite sides** of the transversal, **inside** the parallel lines and are **equal** to each other.
- J. The **sum** interior angle for a convex quadrilateral will equal 360°
- K. This is the result of having a set of lines and a transversal where the **consecutive angles** are **greater than 180°**
- L. The angle at the **top** of the triangle.
- M. This is when the R.H.S. and L.H.S. of an equation are switched, but the individual terms are left in the same order.
- N. Two angles on the **outside** of parallel lines, on **opposite sides** of the transversal and are **equal** to each other.
- P. When two angles add up to 180° .
- Q. The angles at the **bottom** of a triangle.
- R. When two angles add up to 90° .
- S. This is the catch 22, If no other property or identity describes the scenario this “replacement property” should be used.
- T. Two **intersecting lines** create angles that are opposite and **equal** to each other.
- U. This is what one calls the line that **cuts through** a set of parallel lines. One often uses this line to **carry** attributes from one of the parallel lines to the next.
- V. Two valid statements will initially be given, one can then logically arrive at a third valid statement by passing on the shared trait.

1. F Corresponding Angles
2. B Alternate Interior
3. C Vertical Angles
4. E Consecutive Interior
5. D Linear Pair
6. H Angle Sum for Triangle
7. A Exterior Angle Theorem
8. G Alternate Exterior

<p>A.</p> 	<p>B.</p> 
<p>C.</p> 	<p>D.</p> 
<p>E.</p> 	<p>F.</p> 
<p>G.</p> 	<p>H.</p> 
<p>I.</p> 	<p>J.</p> 