

TEST

* SEGMENTS

#1 IF $\overline{AC} = 147$

$$\overline{AB} = 5w - 12$$

$$\overline{BC} = 9w - 23$$



$$\begin{aligned}\overline{AB} + \overline{BC} &= \overline{AC} \\ 5w - 12 + 9w - 23 &= 147 \\ 14w - 35 &= 147\end{aligned}$$

$$14w = 182$$

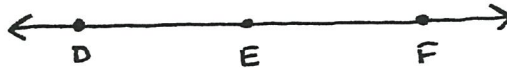
$$w = 13$$

$$w = 13$$

$$\overline{AB} = 53$$

$$\overline{BC} = 94$$

#2 IF E IS MIDPOINT TO \overline{DF}



$$\overline{DE} = 5x + 2$$

$$\overline{EF} = 2x + 38$$

$$\overline{DE} \cong \overline{EF}$$

$$5x + 2 = 2x + 38$$

$$5x - 2x = 38 - 2$$

$$3x = 36$$

$$x = 12$$

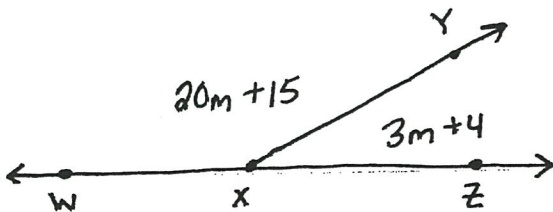
$$x = 12$$

$$\overline{EF} = 62$$

$$* \overline{DF} = 124$$

* ANGLES

#3



$$m = 7$$

$$m \angle YXZ = 25^\circ$$

$$m \angle WXY = 155^\circ$$

$$m \angle WXY + m \angle YXZ = 180^\circ$$

$$20m + 15 + 3m + 4 = 180$$

$$23m + 19 = 180$$

$$23m = 180 - 19$$

$$23m = 161$$

$$m = 7$$

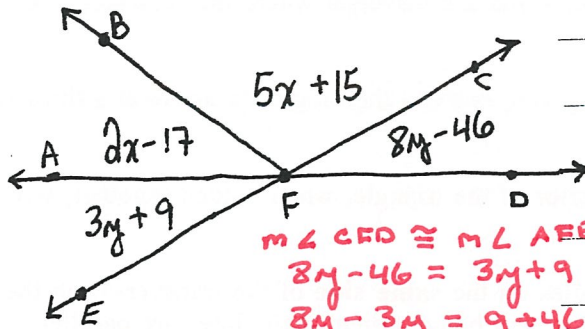
Name _____

Match the Vocabulary with the appropriate definition on the next page

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

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

#4



$$2x - 17 + 5x + 15 = 138$$

$$7x - 2 = 138$$

$$7x = 140$$

$$x = 20$$

$$m\angle CFD \cong m\angle AFE$$

$$8y - 46 = 3y + 9$$

$$8y - 3y = 9 + 46$$

$$5y = 55$$

$$y = 11$$

$$y = 11$$

$$m\angle AFE = 47^\circ$$

$$* m\angle AFC = 138^\circ$$

$$x = 20$$

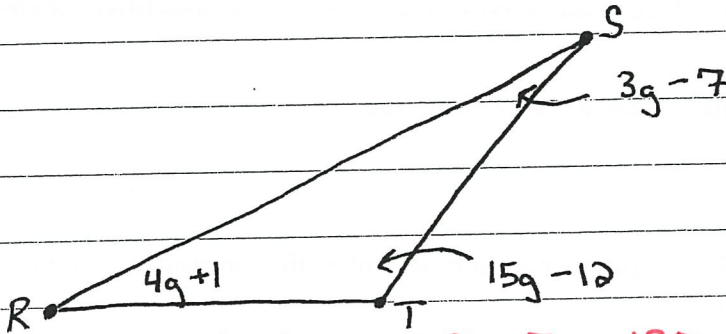
$$m\angle AFB = 23^\circ$$

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

$$* m\angle BFD = 157^\circ$$

★ TRIANGLES

#5



$$4g + 1 + 15g - 12 + 3g - 7 = 180$$

$$22g - 18 = 180$$

$$22g = 198$$

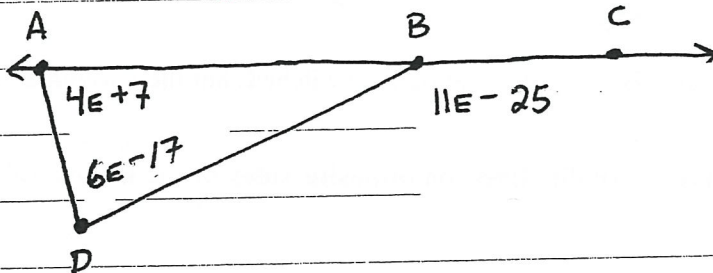
$$g = 9$$

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

$$m\angle S = 20^\circ$$

$$m\angle T = 123^\circ$$

#6



$$4E + 7 + 6E - 17 = 11E - 25$$

$$10E - 10 = 11E - 25$$

$$-10 + 25 = 11E - 10E$$

$$15 = E$$

$$E = 15$$

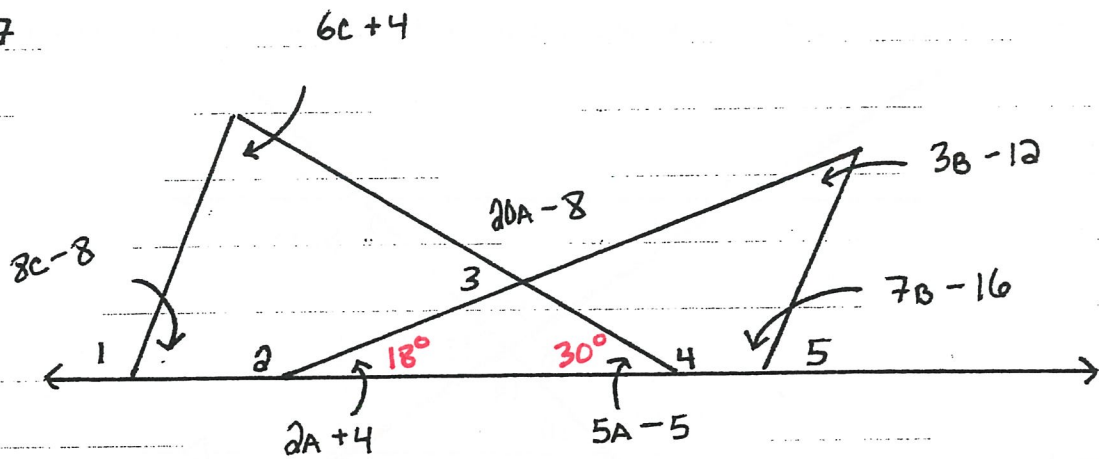
$$m\angle D = 73^\circ$$

$$m\angle A = 67^\circ$$

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

$$* m\angle DBA = 40^\circ$$

#7



ANGLE SUM FOR TRIANGLE

$$2A+4 + 5A-5 + 20A-8 = 180$$

$$27A - 9 = 180$$

$$27A = 189$$

$$A = 7$$

ANGLE SUM FOR TRIANGLE

$$3B-12 + 7B-16 + 18 = 180$$

$$10B - 10 = 180$$

$$10B = 190$$

$$B = 19$$

ANGLE SUM FOR TRIANGLE

$$8C-8 + 6C+4 + 30 = 180$$

$$14C + 26 = 180$$

$$14C = 154$$

$$C = 11$$

$$A = 7$$

$$m\angle 2A+4 = 18^\circ$$

$$m\angle 5A-5 = 30^\circ$$

$$m\angle 20A-8 = 132^\circ$$

$$B = 19$$

$$m\angle \overset{3B-12}{2B+2} = 45^\circ$$

$$m\angle \overset{7B-16}{7B+7} = 117^\circ$$

$$C = 11$$

$$m\angle \overset{6C+4}{5C+30} = 70^\circ$$

$$m\angle \overset{8C-8}{9C-1} = 80^\circ$$

$$m\angle 1 = 100^\circ$$

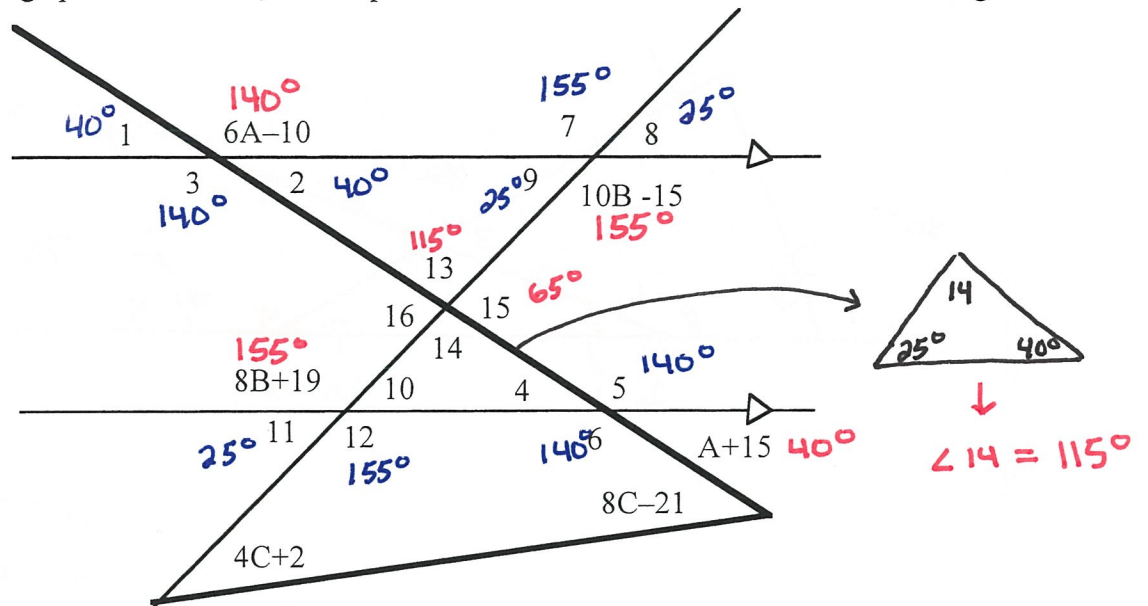
$$m\angle 2 = 162^\circ$$

$$m\angle 3 = 48^\circ$$

$$m\angle 4 = 150^\circ$$

$$m\angle 5 = 63^\circ$$

Based on the image provided below, write equations and find the values for the indicated angles.



$6A - 10 + A + 15 = 180$: CONSECUTIVE EXTERIOR ANGLES

$7A + 5 = 180$

$7A = 175$

$A = 25$

$10B - 15 = 8B + 19$: ALTERNATE INTERIOR ANGLES

$2B = 34$

$B = 17$

$A = \underline{25}$

$B = \underline{17}$

$m\angle 13 = \underline{115^\circ}$

$m\angle 1 = \underline{40^\circ}$

$m\angle 7 = \underline{155^\circ}$

$m\angle 14 = \underline{115^\circ}$

$m\angle 2 = \underline{40^\circ}$

$m\angle 8 = \underline{25^\circ}$

$m\angle 15 = \underline{65^\circ}$

$m\angle 3 = \underline{140^\circ}$

$m\angle 9 = \underline{25^\circ}$

$m\angle 16 = \underline{65^\circ}$

$m\angle 4 = \underline{40^\circ}$

$m\angle 10 = \underline{25^\circ}$

$C = \underline{7}$

$m\angle 5 = \underline{140^\circ}$

$m\angle 11 = \underline{25^\circ}$

$m\angle 6 = \underline{140^\circ}$

$m\angle 12 = \underline{155^\circ}$

$$4c + 2 + 8c - 21 = 65^\circ : \text{ EXTERIOR ANGLE THEOREM}$$

$$12c - 19 = 65^\circ$$

$$12c = 84$$

$$c = 7$$