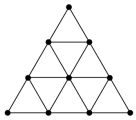
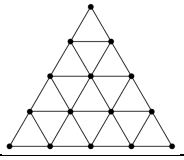
Geometry Chapter 2 Review Name _____

1. Find the next two numbers in the pattern. Then describe the pattern.
   $100, -50, 25, -12.5, \ldots$

2. Each figure consists of triangles constructed from unit segments connecting each point.
   a. Fill out the rest of the chart

Figure	1	2	3	4	5
Picture					
Number of Unit Segments	3	9			
Number of Unit Triangles	1	4			

   b. Describe the pattern for the number of unit segments.

   c. Describe the pattern for the number of unit triangles

   d. Find the number of unit segments and unit triangles in the 8^{th} figure.

3. Use the following conditional statement: An angle is obtuse if it measures 130°.
   a. Rewrite the statement in if-then form. (Hint: the hypothesis already follows "if")

   b. Underline the hypothesis (condition) and circle the conclusion in your statement above.

   c. Is your if-then statement true or false? If false, then provide a counterexample.

4. Use the following if then statement: If *x* equals 3, then *x* is greater than 2.
   a. Write the converse statement.

      Is the converse true or false? If false, then provide a counterexample.

   b. Write the inverse statement.

      Is the inverse true or false? If false, then provide a counterexample.

   c. Write the contrapositive statement.

      Is the contrapositive true or false? If false, then provide a counterexample.

5. Determine if each could be rewritten as a valid biconditional statement. (Hint: Are both the original and converse true?) If it can be rewritten as a valid biconditional statement, then write it as a biconditional statement

a. If two angles add up to 90°, then the two angles are complementary. Yes or No
If yes, then rewrite as a biconditional:

b. If a polygon is regular, then the polygon is equilateral. Yes or No
If yes, then rewrite as a biconditional:

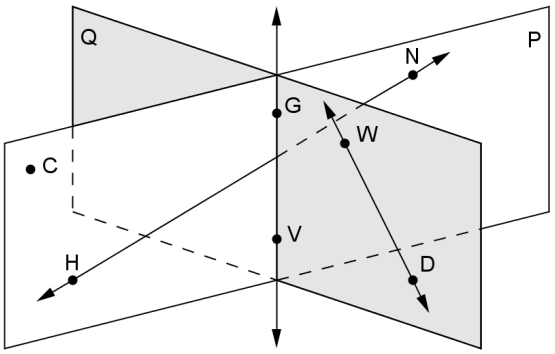
c. If a number is divisible by 4, then the number is divisible by 2. Yes or No
If yes, then rewrite as a biconditional:

d. If $x + 1 = 3$, then $x + 5 = 7$. Yes or No
If yes, then rewrite as a biconditional:

6. Planes P and Q intersect as shown. Points W and D lie in Plane Q. Points C, H, and N lie in Plane P.

True or False

a. *C, H,* and *D* are coplanar. T or F
b. The intersection of Planes P and Q is $\overleftrightarrow{GV}$. T or F
c. $\overleftrightarrow{HN}$ is in Plane Q. T or F
d. $\overleftrightarrow{WD}$ and $\overleftrightarrow{HN}$ intersect. T or F
e. $\overleftrightarrow{CN}$ exists. T or F
f. *V, G, N,* and *W* are coplanar. T or F
g. $\overleftrightarrow{HN}$ and $\overleftrightarrow{GV}$ intersect. T or F

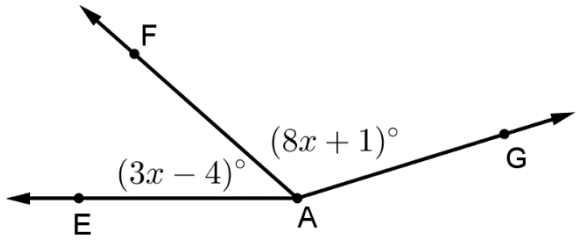


7. Solve the equation and state a reason for each step.

Statement	Reason
1. $6x - 4(x - 3) = 18 - x$	1. Given

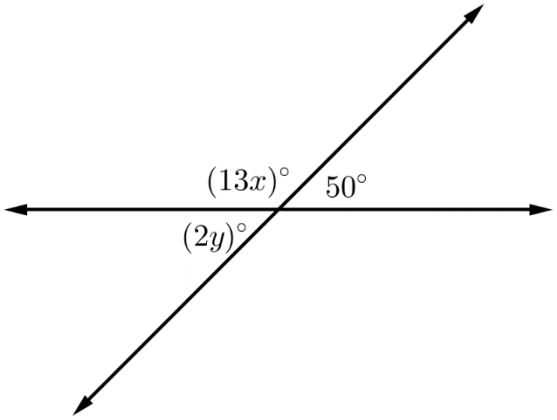
8. Write an equation and solve for the indicated value. Explain your reasoning including any theorems, definitions, or postulates used in **WRITING** the equations.

a. Given $m\angle EAG = 162°$ solve for x.
Equation and solution:



Reason for equation setup:

b. Given the diagram, solve for x and y.
Equation and solution:



Reason for equation setup:

Complete each proof.

9. Given: $\angle 1$ and $\angle 2$ are complementary, $m\angle 1 = 67°$
Prove: $m\angle 2 = 23°$

10. Given: $\overline{ZE} \cong \overline{RO}; RO = 11; ZR = 24$
Prove: $EO = 24$