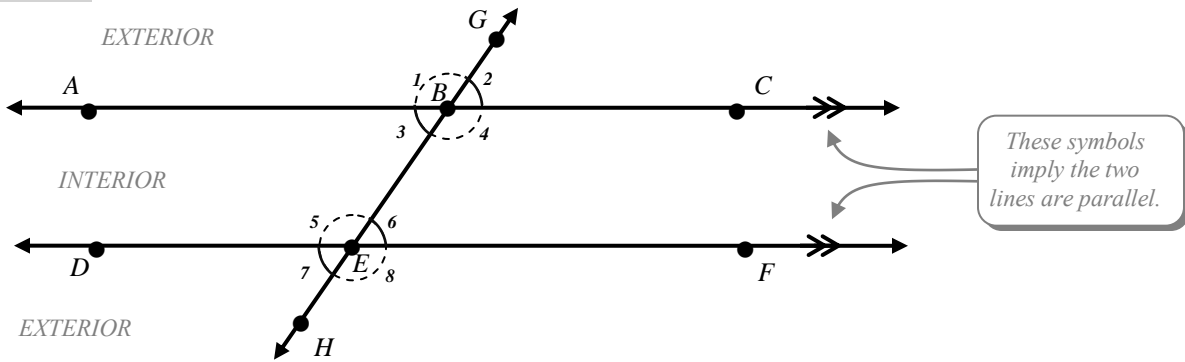


**PARALLEL LINES**



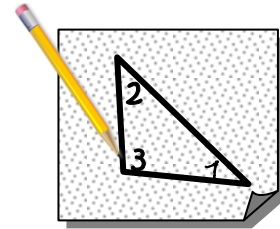
**WORD BANK:**

- Alternate Interior Angles
- $\sphericalangle DEH$
- Corresponding Angles
- Supplementary
- $\sphericalangle GBC$
- $\sphericalangle 5$
- Transversal
- Vertical Angles
- Consecutive Exterior Angles
- Consecutive Interior Angles
- Congruent
- $\sphericalangle 4$
- Alternate Exterior Angles
- $\sphericalangle ABG$

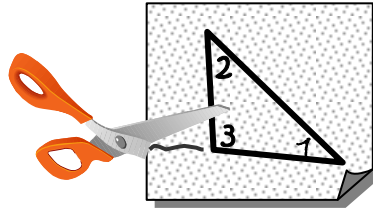
1. Give an alternate name for angle  $\sphericalangle 2$  using 3 points: \_\_\_\_\_
2. Angles  $\sphericalangle ABE$  and  $\sphericalangle CBG$  can best be described as: \_\_\_\_\_
3. Angles  $\sphericalangle 6$  and  $\sphericalangle 3$  can best be described as: \_\_\_\_\_
4. The line  $\overleftrightarrow{GH}$  can best be described as a: \_\_\_\_\_
5. Which angle corresponds to  $\sphericalangle DEB$  : \_\_\_\_\_
6. Angles  $\sphericalangle FEB$  and  $\sphericalangle CBE$  can best be described as: \_\_\_\_\_
7. Angles  $\sphericalangle 1$  and  $\sphericalangle 8$  can best be described as: \_\_\_\_\_
8. Which angle is an alternate interior angle with  $\sphericalangle CBE$  : \_\_\_\_\_
9. Angles  $\sphericalangle GBC$  and  $\sphericalangle BEF$  can best be described as: \_\_\_\_\_
10. Angles  $\sphericalangle 2$  and  $\sphericalangle 8$  can best be described as: \_\_\_\_\_
11. Which angle is an alternate exterior angle with  $\sphericalangle ABG$  : \_\_\_\_\_
12. Which angle is a vertical angle to  $\sphericalangle ABG$  : \_\_\_\_\_
13. Which angle can be described as consecutive exterior angle with  $\sphericalangle 1$  : \_\_\_\_\_
14. Any two angles that sum to  $180^\circ$  can be described as \_\_\_\_\_ angles.

**TRIANGLE'S INTERIOR ANGLE SUM**

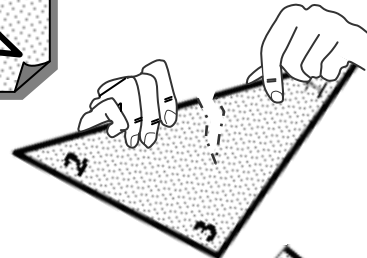
1. a. First, Create a random triangle on a piece of patty papers.
- b. Using your pencil, write a number inside each interior angle a label.



- c. Next, cut out the triangle.



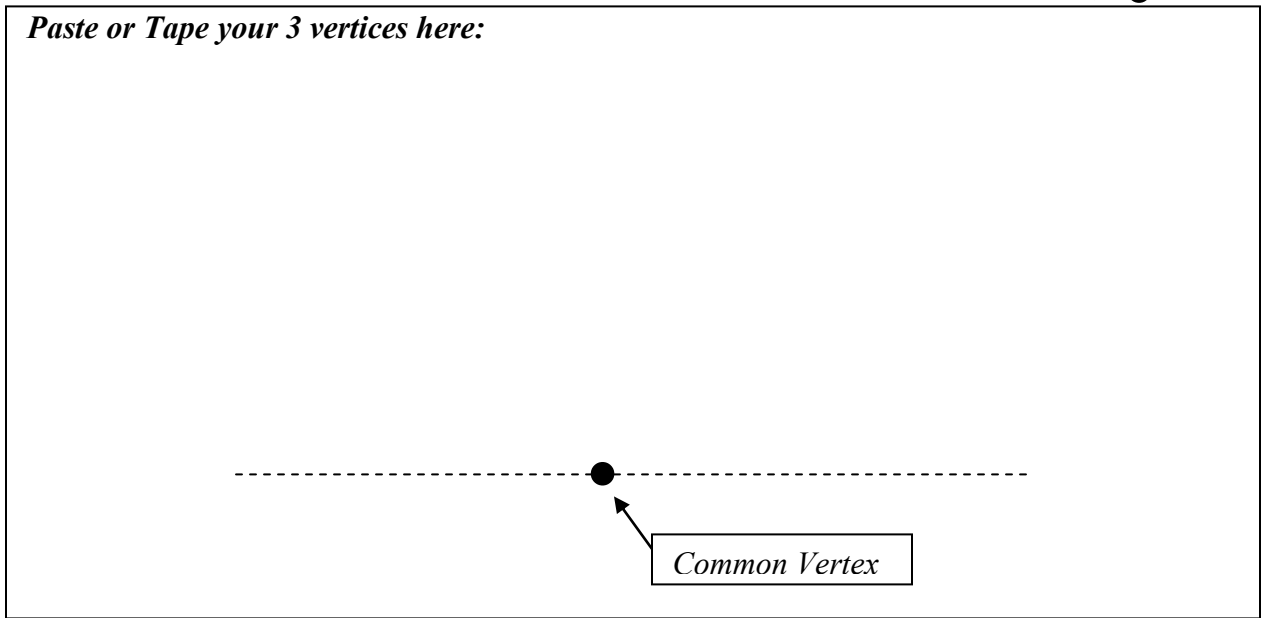
- d. Finally, tear off or cut each of the angles from the triangle



- e. Using tape, carefully put all 3 angles next to one another so that they all have the same vertex and the edges are touching but they aren't overlapping

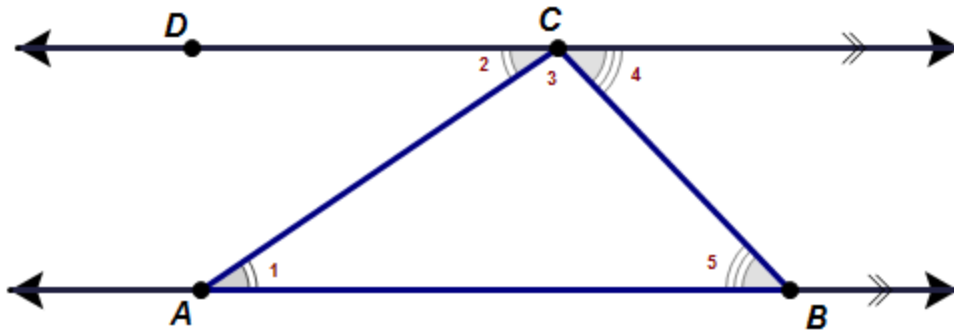


*Paste or Tape your 3 vertices here:*



2. What is the measure of a straight angle or the angle that creates a line by using two opposite rays from a common vertex?
3. Collectively does the sum of your 3 interior angles of a triangle form a straight angle? What about others in your class?
4. Make a conjecture about the sum of the interior angles of a triangle. Do you think your conjecture will always be true? (please explain using complete sentences)

5. More formally, why do the 3 interior angles of any triangle sum to  $180^\circ$ ?



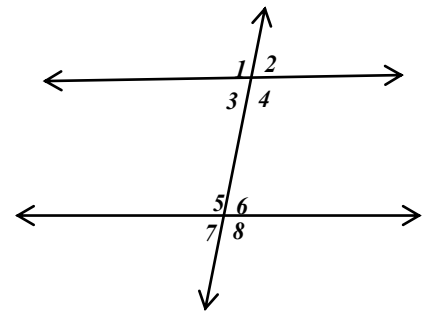
Consider  $\triangle ABC$ . The segment  $\overline{AB}$  is extended into a line and a parallel line is constructed through the opposite vertex. So,  $\overrightarrow{AB} \parallel \overrightarrow{CD}$ .

- Why is  $\angle 1 \cong \angle 2$ ? \_\_\_\_\_
- Why is  $\angle 5 \cong \angle 4$ ? \_\_\_\_\_
- Why is  $m\angle 2 + m\angle 3 + m\angle 4 = 180^\circ$ ? \_\_\_\_\_
- Using substitution we can replace  $m\angle 2$  with  $m\angle 1$  and  $m\angle 4$  with  $m\angle 5$  to show that the interior angles of a triangle must always sum to  $180^\circ$ .

$$(\quad) + m\angle 3 + (\quad) = 180^\circ$$

Write the angle number in the \_\_\_ and then write the letter that corresponds with the number based on the code at the bottom in the box.

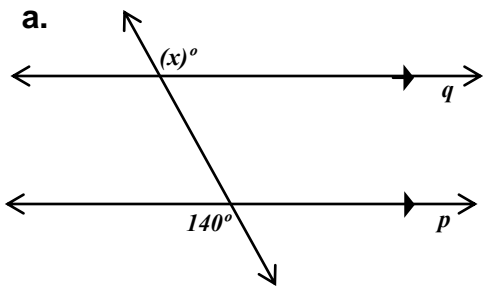
- Angle 2 and Angle \_\_\_ are alternate exterior angles.
- Angle 7 and Angle \_\_\_ are alternate exterior angles.
- Angle 4 and Angle \_\_\_ are corresponding angles.
- Angle 5 and Angle \_\_\_ are consecutive interior angles.
- Angle 3 and Angle \_\_\_ are alternate interior angles.
- Angle 7 and Angle \_\_\_ are consecutive exterior angles.
- Angle 6 and Angle \_\_\_ are vertical angles.
- Angle 2 and Angle \_\_\_ are a linear pair and on the same side of the transversal.
- Angle 1 and Angle \_\_\_ are corresponding angles.



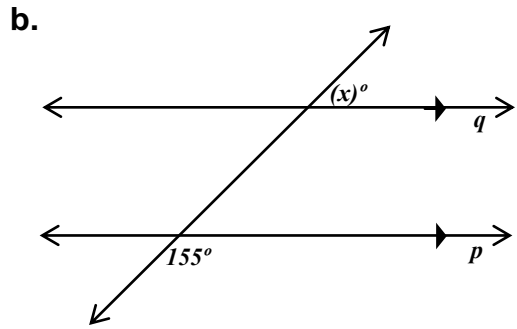
1=D	2=U	3=L	4=A	5=N	6=I	7=E	8=C
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What type of Geometry is this? \_\_\_\_\_

16. Given lines p and q are parallel, find the value of x that makes each diagram true.

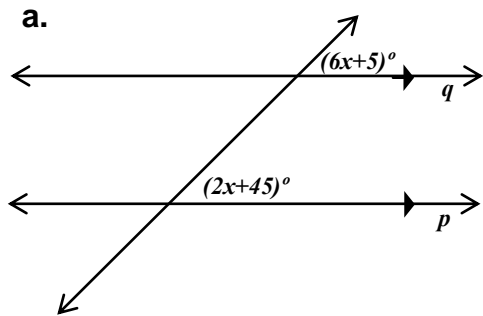


$x =$

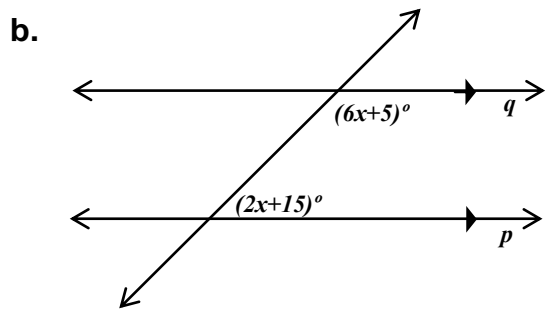


$x =$

17. Given lines p and q are parallel, find the value of x that makes each diagram true.

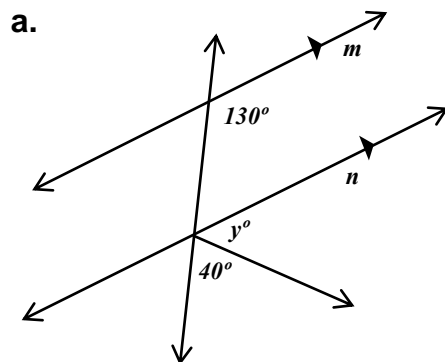


$x =$

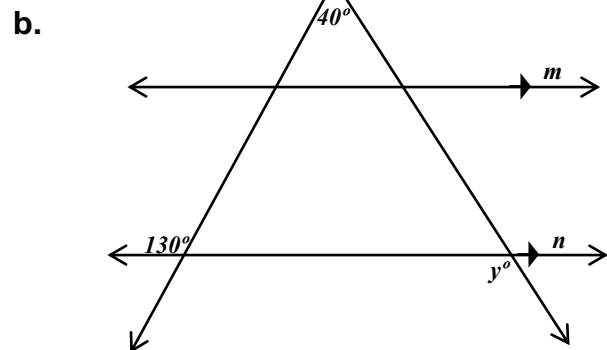


$x =$

18. Given lines m and n are parallel, find the value y of that makes each diagram true.



$y =$



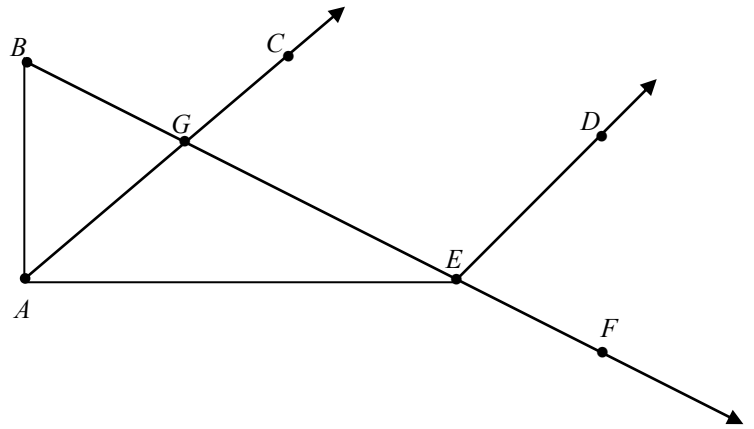
$y =$

19. ANGLE PUZZLE. Find  $m\angle AEF$

Given:

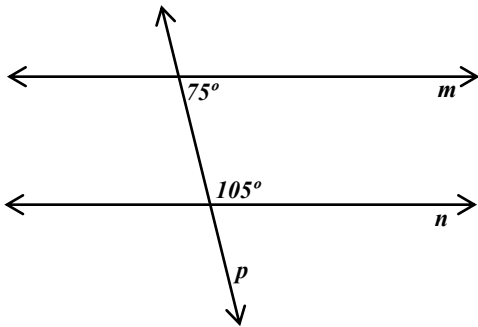
- $m\angle DEF = 85^\circ$
- $m\angle ABG = 50^\circ$
- $\angle BAE$  is a right angle
- $\angle CGE$  and  $\angle DEG$  are supplementary

$m\angle AEF =$

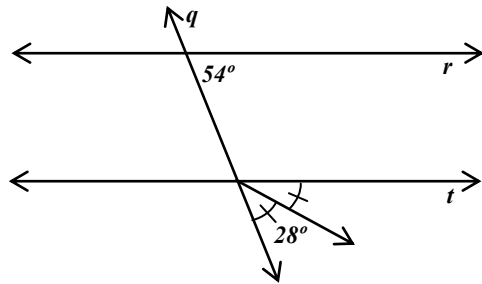


20. Converse of AIA, AEA, CIA, CEA. Which sets of lines are parallel and explain why?

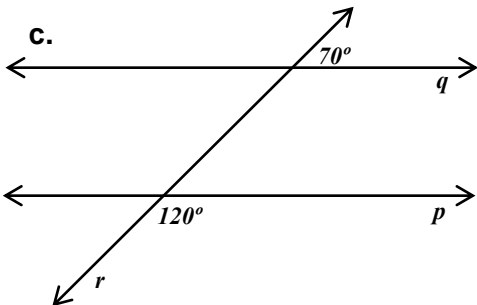
a.



b.



c.



d.

