

Name: \_\_\_\_\_

Date: \_\_\_\_\_

### **FOM 11 - Geometry Discovery Activity**

*For these activities, use a ruler when drawing a line, and use a protractor to measure angles. When asked to name 'Angle Type', it is one of acute, right, obtuse, or straight.*

1a) Draw a horizontal line. Measure its angle using a protractor, and state the type of angle.

Angle Measure: \_\_\_\_\_

Angle Type: \_\_\_\_\_

1b) Add a transversal line that touches your horizontal line. *Example:* 

Above the original horizontal line, you've now created two angles. Identify the type of each angle, and find the angle measure of each:

Angle on Left

Angle on Right

Angle Type: \_\_\_\_\_

Angle Type: \_\_\_\_\_

Angle Measure: \_\_\_\_\_

Angle Measure: \_\_\_\_\_

1c) Can you see a relationship between the two angles? What is it?

1d) What do we call this relationship in geometry? \_\_\_\_\_

1e) In what situations will you always see this relationship?

1f) Can this relationship exist if a straight line is split into 3 or more angles?

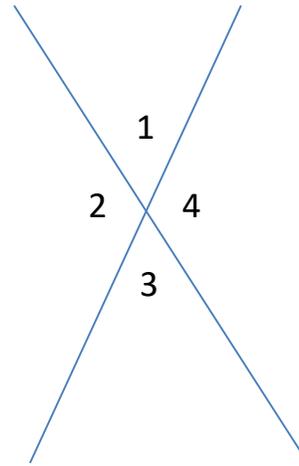
2a) Measure all four angles:

$\angle 1 =$  \_\_\_\_\_

$\angle 2 =$  \_\_\_\_\_

$\angle 3 =$  \_\_\_\_\_

$\angle 4 =$  \_\_\_\_\_



2b) Are there any supplementary relationships? State them all:

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2c) What other relationship do you notice between any angle pairings?

2d) What do we call this relationship in geometry?

2e) In what situations will you always see this relationship?

2f) Will this relationship still exist if three lines cross? Draw a picture.

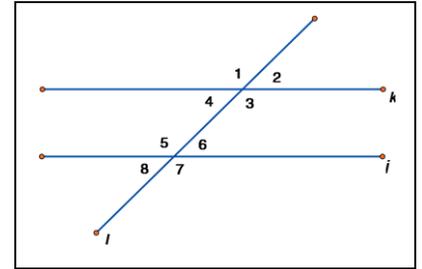
2g) What relationship do you notice when looking at all 4 angle measures together?

2h) Why is this so?

2i) Is this relationship evident in the diagram from question #1 on the last page?  
Explain:

3a) Draw a set of horizontal parallel lines with about a thumb length between them. You'll have to do some measuring with your ruler to make sure the lines are parallel. Then, draw a transversal that cuts through both lines. *Example:*

Label the angles as shown in the example.



3b) Measure each angle on your drawing:

$\angle 1 =$  \_\_\_\_\_  $\angle 2 =$  \_\_\_\_\_  $\angle 3 =$  \_\_\_\_\_  $\angle 4 =$  \_\_\_\_\_  
 $\angle 5 =$  \_\_\_\_\_  $\angle 6 =$  \_\_\_\_\_  $\angle 7 =$  \_\_\_\_\_  $\angle 8 =$  \_\_\_\_\_

3c) Are there any supplementary relationships? State them all:

3d) Are there any vertically opposite relationships? State them all:

3e) See any relationships between any of angles 1-4 with any of angles 5-8?

3f) Use a device to google search three terms: ***corresponding angles, alternate interior angles, and co-interior angles.***

3g) List all corresponding angle sets: \_\_\_\_\_

3h) List all alternate interior angle sets: \_\_\_\_\_

3i) Co-interior angles are not equal. What is true of co-interior angles? List all sets of co-interior angles: \_\_\_\_\_

4) An isosceles triangle has two equal sides:

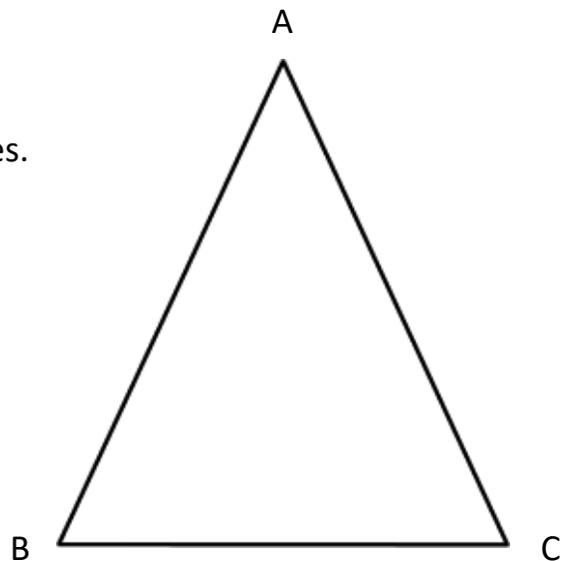
a) Put a dash mark on each of the identical sides.

b) Measure each angle:  $\angle A =$  \_\_\_\_\_

$\angle B =$  \_\_\_\_\_

$\angle C =$  \_\_\_\_\_

c) What do you notice?

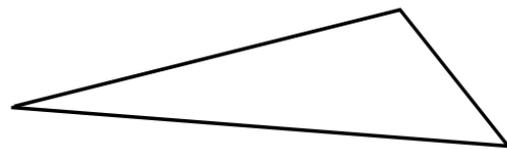


d) What is also true of any isosceles triangle?

e) How can you describe the location of the two equal angles on any isosceles triangle?

f) What do you notice about all three angles together?

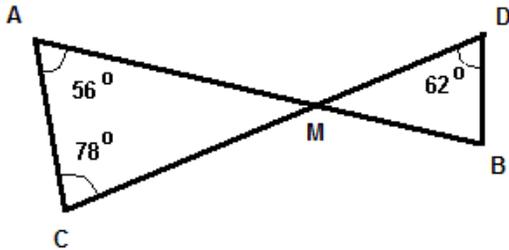
g) Is part (f) also true for this triangle? Use a protractor:



h) Therefore, what is true for any triangle?

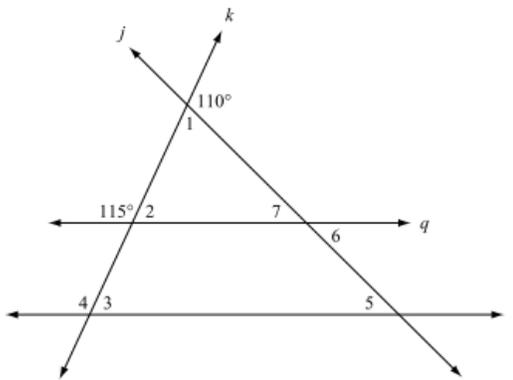
5) Figure out the missing angles and give a reason why using any of the terminology you learned earlier in this activity.

a) Find  $\angle AMC$ ,  $\angle DMB$ , &  $\angle DBM$



Statement	Reason

b) Find  $\angle 1$ ,  $\angle 2$ ,  $\angle 3$ ,  $\angle 4$ ,  $\angle 5$ ,  $\angle 6$ ,  $\angle 7$



Statement	Reason

c) Find  $\angle x$ . Explain in words how you found it.

