Date: _____ Name: _____

Angles Lab Period: _____

A-N-G-L-E-S LAB

Visit each station in any order.
Have your lab sheet (this page) checked and marked before moving to another station.

STATION	STUDENT NOTES / RESPONSE	TEACHER MARK / COMMENTS
A	___ ___ ___ ___ ___ ___ ___	
N	(see reverse side)	
G		
L		
E		
S		

Angles Lab

Station N

Name	Number of Sides (n)	Number of Triangles Formed	Sum of All the Angles
Triangle	3	1	180
Quadrilateral	4	2	360
Pentagon	5		
Hexagon			
Heptagon	7		
Octagon			
Nanogon	9		
Decagon			
Dodecagon	12		
Icosagon	20		
n-gon	n		

Angles Lab

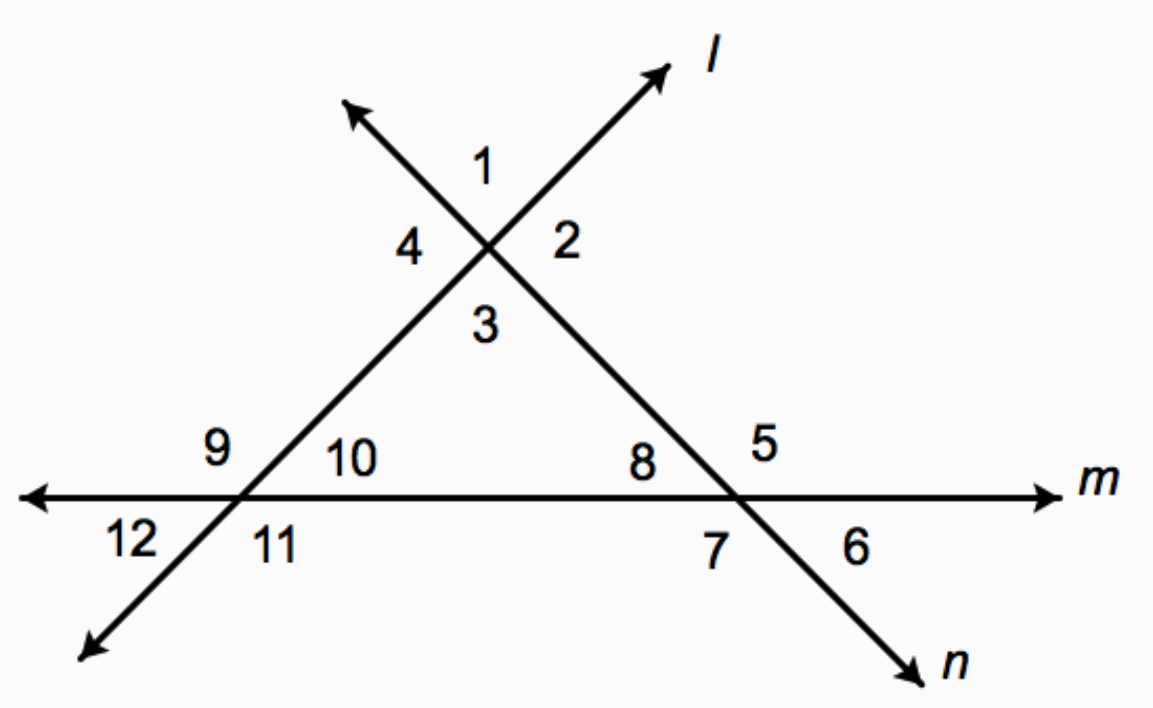
Station A

A **transversal** is a line that crosses two or more lines.

In class, we studied special angle relationships formed by a transversal crossing parallel lines. Note, however, that a transversal could cross lines that are not parallel.

Below are three intersecting lines, *l*, *m*, and *n*.

Start with the two angles.
Figure out which line is the transversal associated with the 2 angles.
Match the angles with the name of the angle relationship.
Record the letter of the name of the relationship in order of the angle pair numbers.

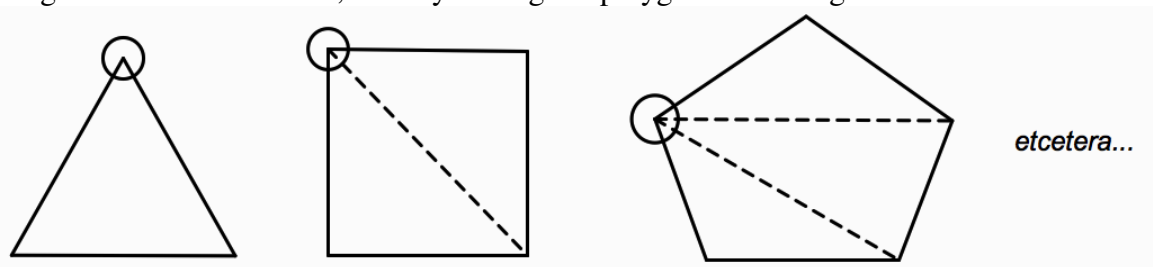


Two Angles	Angle Relationship Name
1. ∠3, ∠5	A. Alternate Exterior
2. ∠6, ∠12	C. Same-Side Exterior
3. ∠1, ∠11	G. Linear Pair
4. ∠6, ∠8	I. Same-Side Interior
5. ∠9, ∠4	N. Corresponding
6. ∠3, ∠7	R. Vertical Pair
7. ∠2, ∠3	S. Alternate Interior

Angles Lab

Station N

The sum of the angles of a convex polygon can be determined by drawing all possible diagonals from one vertex, thereby cutting the polygon into triangles:



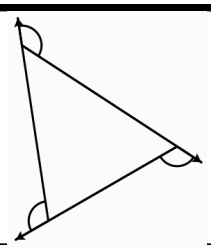
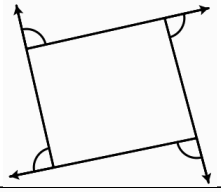
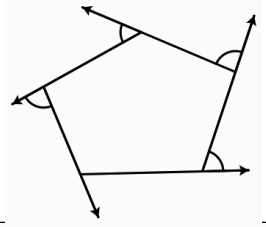
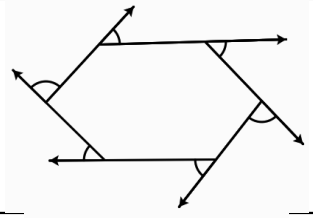
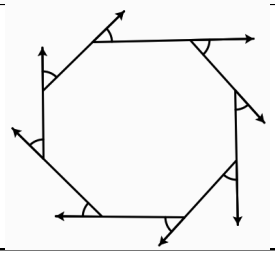
Based on this information, complete the table below on the back side of your lab sheet.

Name	Number of Sides (n)	Number of Triangles Formed	Sum of All the Angles
Triangle	3	1	180
Quadrilateral	4	2	360
Pentagon	5		
Hexagon			
Heptagon	7		
Octagon			
Nanogon	9		
Decagon			
Dodecagon	12		
Icosagon	20		
n-gon	n		

Angles Lab

Station G

Determine the sum of the exterior angles of each polygon.

Name	Looks Like	Sum of the Exteior Angles (marked)
Triangle		
Quadrilateral		
Pentagon		
Hexagon		
Octagon		
n-gon (general case)	Polygon with n-sides	

On your lab sheet, write what you found,

and

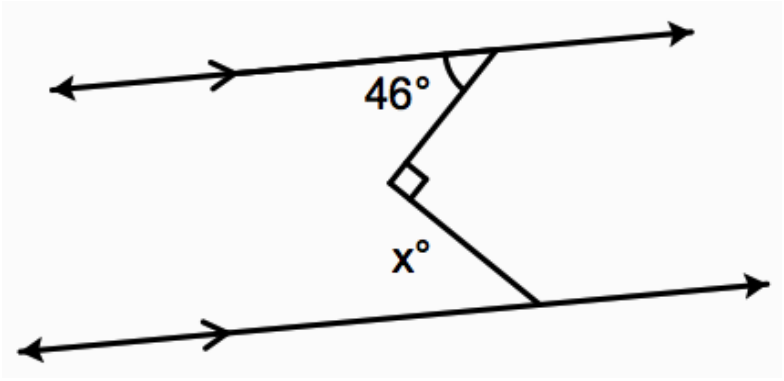
Explain why some scholars nickname this the “Walk-Around Theorem.”

Angles Lab

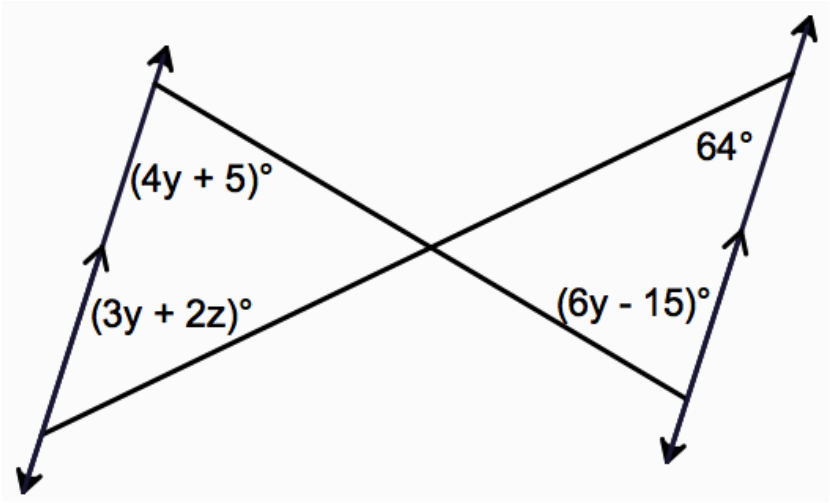
Station L

Use your knowledge of parallel lines to solve these two math puzzles.

1.



2.



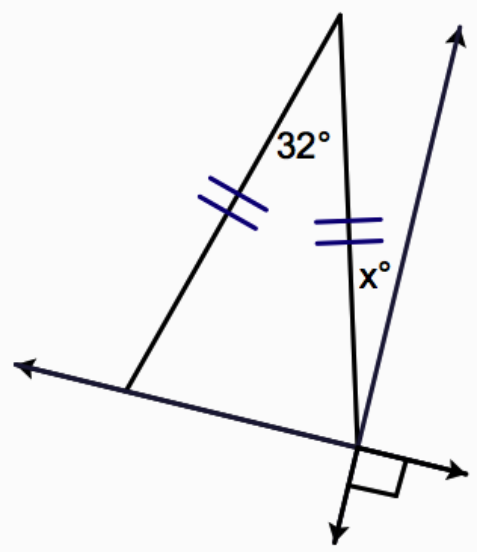
Record the values of x, y, and z on your lab sheet.

Angles Lab

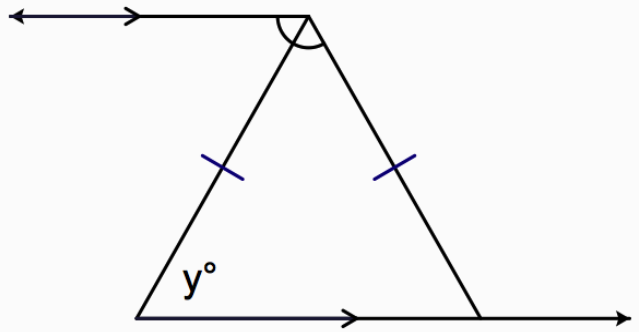
Station E

Solve the two isosceles triangle problems shown below.
Write your answers on the lab sheet AND a short explanation how you solved them.

1.



2.



Angles Lab

Station S

Given the rectangle with dimensions shown below,
Solve for the sum of the areas of the shaded triangles.
Explain how you got your answer.