Math 20-2
Objective: Solve Problems that involve properties of parallel lines and triangles.
Skill: Use reasoning to solve problems.

A. Solve at least on of the Sudoku.

Grid 1:

	2				3
		3	4	1	6
	6		2	3	5
					4
4			5	2	1

Grid 2:

		5	3	2	
5	4		6	1	3
		6	4	2	
	6				
		1	5		6

Grid 3:

		4	6		
1					5
	5	6		2	4
		2	4		

Grid 4:

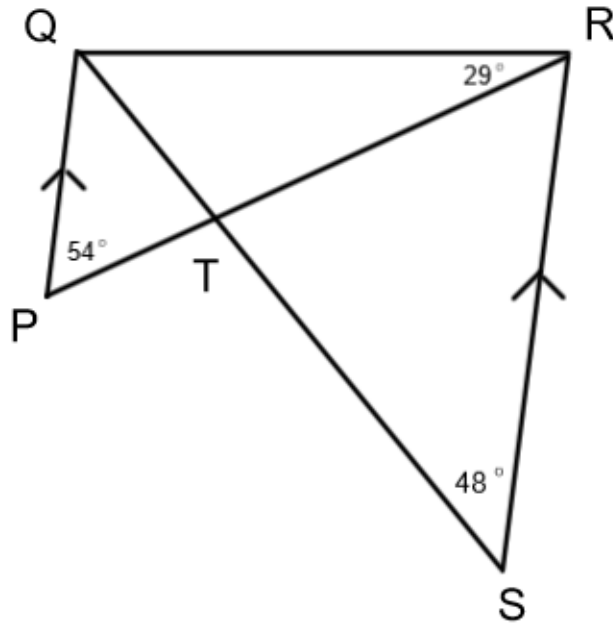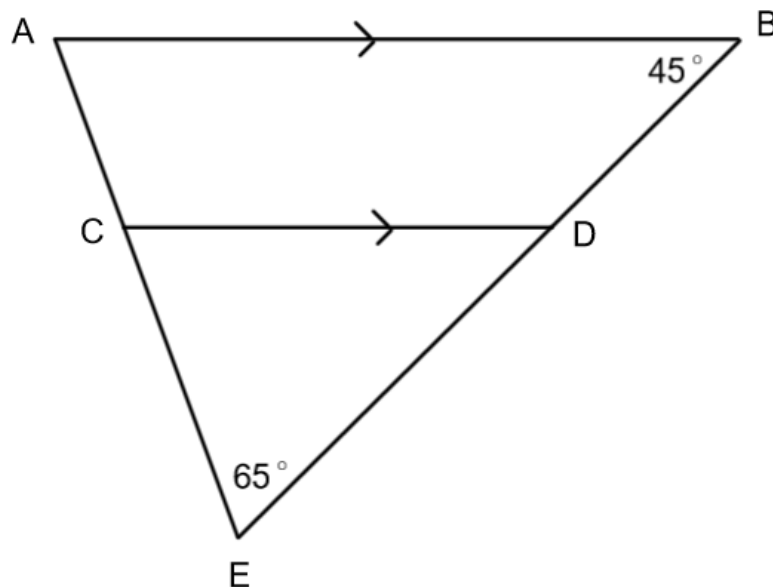|					
					1
6		2	5		
4		1			
	6				
5		4			
				2	

B. Parallel Lines and Triangle Problems.

1. Given PQ is parallel to RS. Use parallel line and triangle properties to determine the following angle measures:
   a) $\sphericalangle PQS$
   b) $\sphericalangle PTQ$
   c) The other four angles.

2. Given AB is parallel to CD. Use parallel line and triangle properties to determine the following angle measures:
   a) $\sphericalangle CDE$ and $\sphericalangle CDB$
   b) All the other three angles.

C. Use angle sums to determine relationship between an exterior angle and angles in a triangle.

Example 1:
In the diagram, ∠ MTH is an exterior angle of △ MAT. Determine the measures of the unknown angles in △ MAT. What two interior angles add to equal ∠ MTH ?

M

40

155

A   T   H
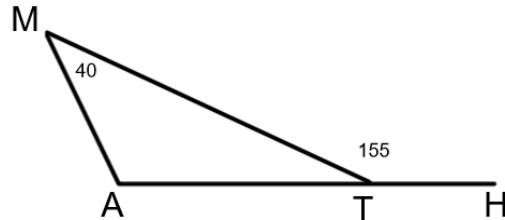
Example 2;
In the diagram, ∡$TPQ = 110°$ and ∡$QRP = 37°$.
Why is , ∡TPQ considered an exterior angle of $\triangle PQR$?
Determine the measures of the other unknown angles in $\triangle PQR$.
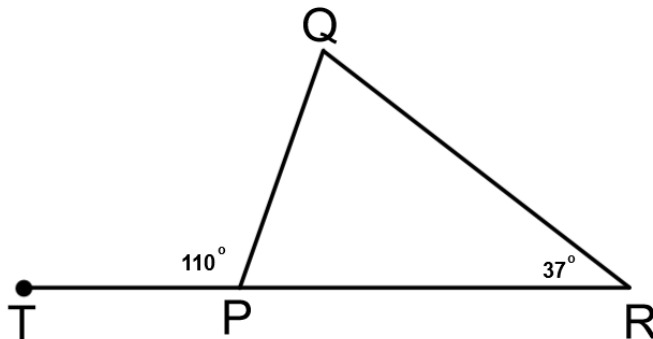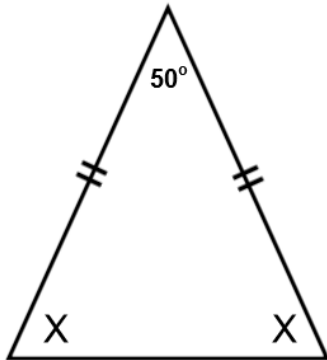What two interior angles add to equal , ∡TPQ?

Q

110°   37°
T   P   R

What two angles inside a triangle will always add to equal an exterior angle in a triangle? Why?

Use triangle properties, parallel line properties and exterior angle properties to write equations and solve problems:

1. Write an equation and solve for x.

50°

X   X

2. Given: $MN \parallel PQ$ and $MQ \parallel NP$.
   Determine the measures of $\angle MNP$, $\angle MNO$, $\angle NMO$, $\angle QMO$, $\angle MQO$ and $\angle QOM$.

M   Q
77°
                        42° O
        15°
N   P