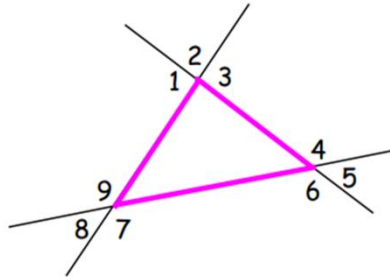


Section 8.4  
Exterior Angles

Exterior Angle Theorem: The exterior angle is equal to the sum of the two remote interior angles.



1. Which of the angles in the figure are not exterior angles of the triangle?

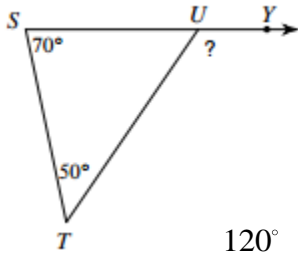
$\angle 2, \angle 5, \angle 8$

2. Which of the angles are the exterior angles of the triangle? (Hint: there are six of them.)

$\angle 1, \angle 3, \angle 4, \angle 6, \angle 7, \angle 9$

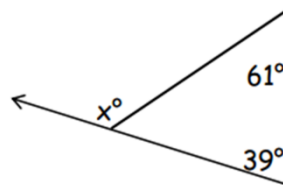
Solve for the variable or the missing angle in the following problems:

1.



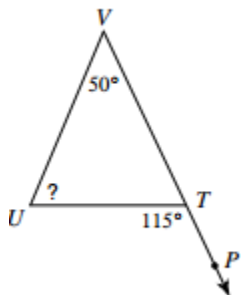
$120^\circ$

2.



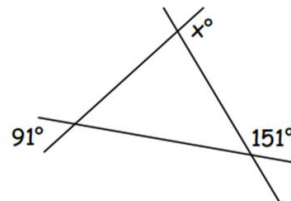
$x = 100^\circ$

3.



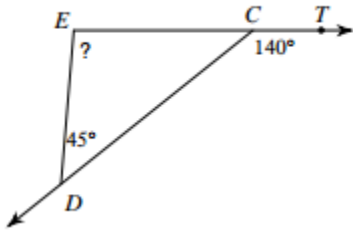
$65^\circ$

4.



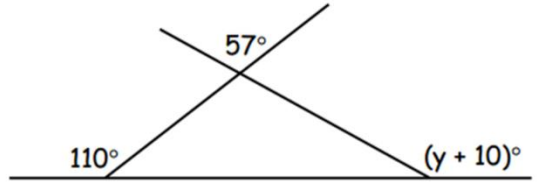
$x = 120^\circ$

5.



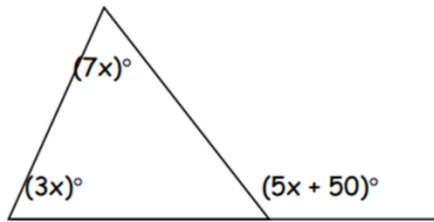
$$95^\circ$$

6.



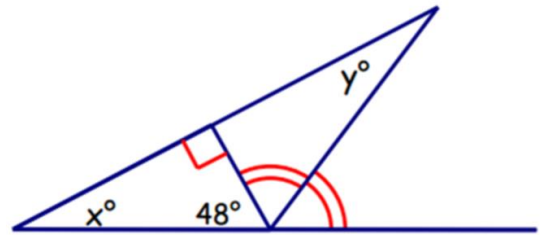
$$y = 117$$

7.



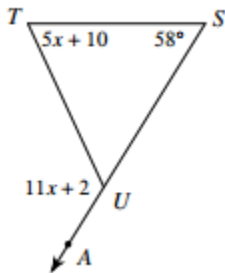
$$x = 10$$

8.



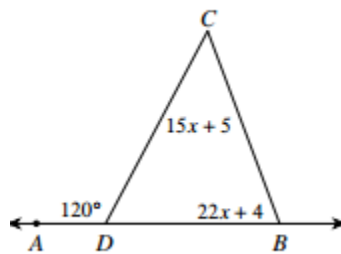
$$x = 42^\circ \quad y = 24^\circ$$

9.



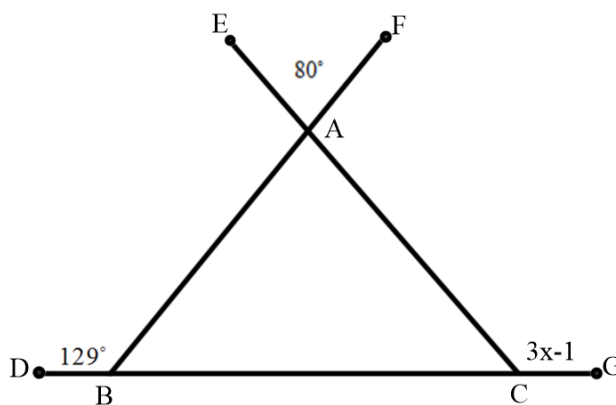
$$x = 11$$

10.



$$x = 3$$

11. Given:  $m\angle DBA = 129^\circ$   
 $m\angle EAF = 80^\circ$   
 $m\angle ACG = 3x - 1$   
 Prove:  $x = 44$



Statement	Reason
1. $m\angle DBA = 129^\circ$	1. Given
2. $m\angle DBA + m\angle ABC = 180^\circ$	2. Definition of Linear Pair
3. $129^\circ + m\angle ABC = 180^\circ$	3. Substitution Property of Equality
4. $m\angle ABC = 51^\circ$	4. Subtraction Property of Equality
5. $m\angle EAF = 80^\circ$	5. Given
6. $m\angle CAB = 80^\circ$	6. Vertical Angles are Equal
7. $m\angle ACG = 3x - 1$	7. Given
8. $m\angle ABC + m\angle CAB = m\angle ACG$	8. Exterior Angle Theorem
9. $3x - 1 = 51^\circ + 80^\circ$	9. Substitution Property of Equality
10. $3x - 1 = 131^\circ$	10. Substitution Property of Equality
11. $3x = 132^\circ$	11. Addition Property of Equality
12. $x = 44$	12. Division Property of Equality