

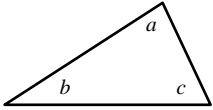
# PARALLEL LINES & TRIANGLES

OBJECTIVE

1. SWBAT apply properties of parallel lines and triangles to solve problems.

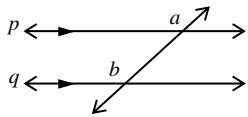
NOTES

**TRIANGLE SUM THEOREM**



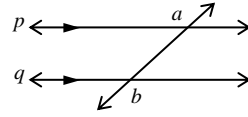
$$a + b + c = 180^\circ$$

**CORRESPONDING ANGLES POSTULATE**



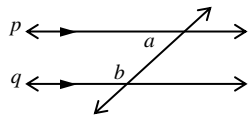
If  $p \parallel q$ ,  
then  $a = b$ .  
(Converse is true.)

**ALTERNATE EXTERIOR ANGLES THM.**



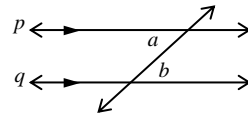
If  $p \parallel q$ ,  
then  $a = b$ .  
(Converse is true.)

**CONSECUTIVE INTERIOR ANGLES THM.**



If  $p \parallel q$ ,  
then  $a + b = 180$ .  
(Converse is true.)

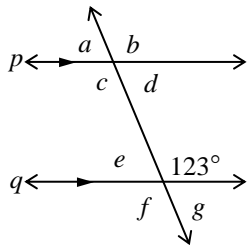
**ALTERNATE INTERIOR ANGLES THM.**



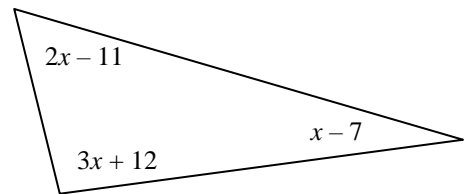
If  $p \parallel q$ ,  
then  $a = b$ .  
(Converse is true.)

EXAMPLES

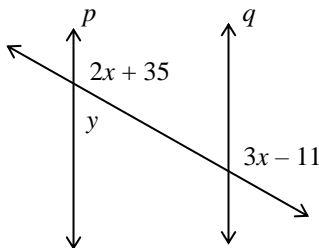
1. Find the measure of all labeled angles.



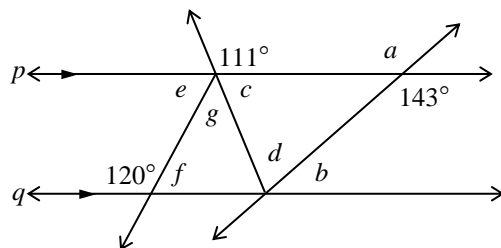
2. Solve for  $x$ , then find the measure of each angle.



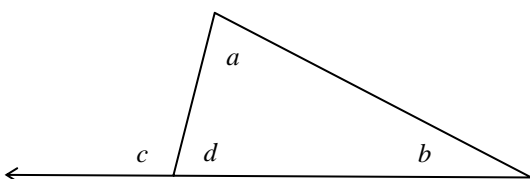
3. Find the measures of  $x$  and  $y$  that make  $p$  parallel to  $q$ .



4. Find the measure of all labeled angles.



5. Prove that  $a + b = c$

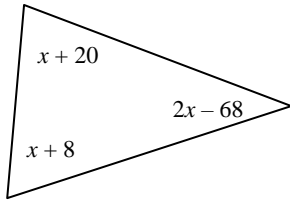


Statements	Reasons

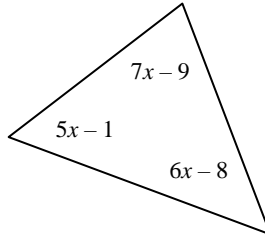
**[SHOW YOUR WORK]**

Solve for  $x$ , then find the measure of each angle.

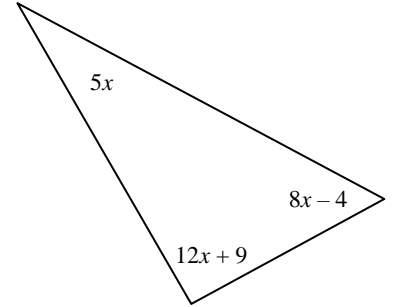
1.



2.

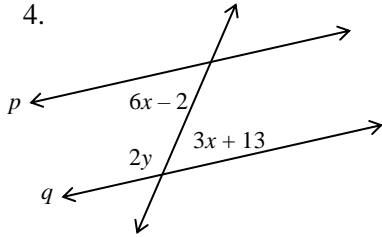


3.

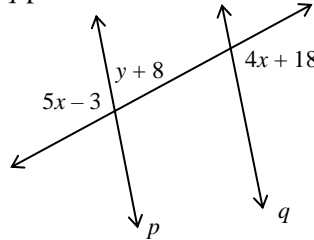


Find the values of  $x$  and  $y$  that make lines  $p$  and  $q$  parallel.

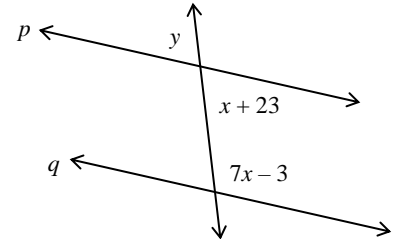
4.



5.

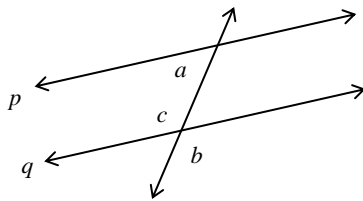


6.



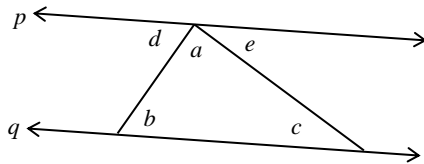
Complete each proof.

7. Given that  $p \parallel q$ ; Prove that  $a + b = 180^\circ$



Statements	Reasons

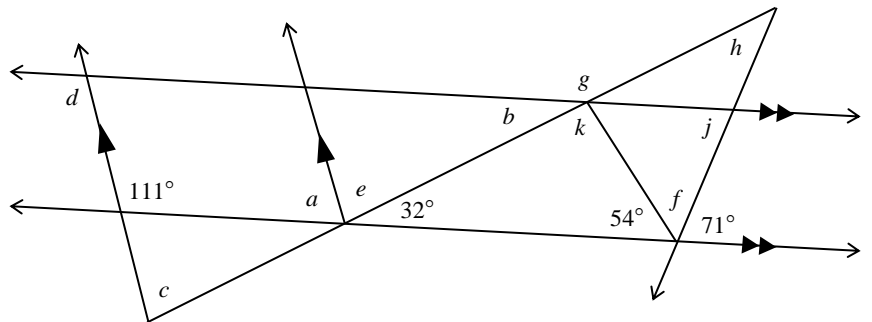
8. Given that  $p \parallel q$ ; Prove that  $a + b + c = 180^\circ$   
(without using the triangle sum theorem)



Statements	Reasons

9. Find the measure of all labeled angles.

- $a =$
- $b =$
- $c =$
- $d =$
- $e =$
- $f =$
- $g =$
- $h =$
- $j =$
- $k =$



★ 10. Find the measures of the angles in a triangle such that one measure is twice the product of the other two measures. All the measures of the angles are positive integers.