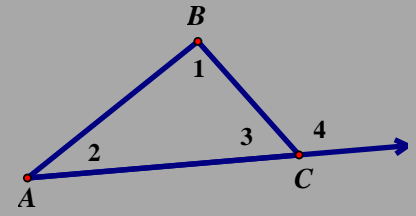
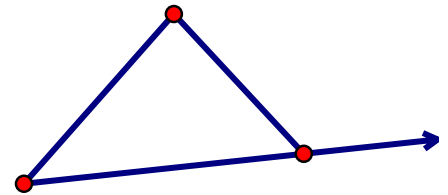


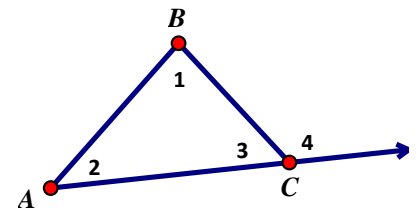
Quick Concept: An exterior angle is formed between a side and the extension of a side. It will always be a linear pair with an internal angle. In the diagram below, $\angle 4$ is the exterior angle. The exterior angle theorem states that the EXTERNAL ANGLE IS EQUAL TO THE SUM OF THE TWO REMOTE ANGLES. The remote angles are those interior angles that are not adjacent to the exterior angle so in this case $\angle 1$ & $\angle 2$ are the remote angles.



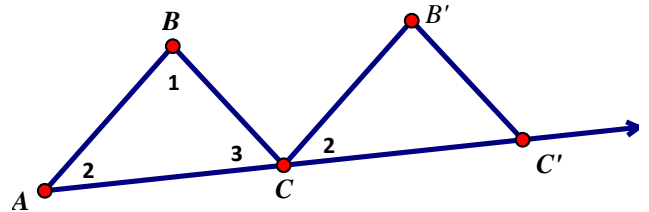
- 1) Activity – Draw a triangle. Extend one of its sides to form an external angle. Cut out the triangle and the external angle. Tear off the two remote angles and place them in the external angle - what do you notice?



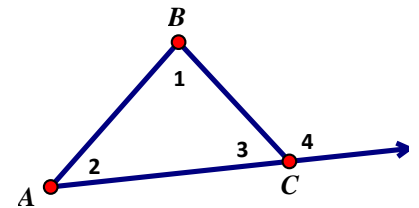
- 2) Jeff is trying to prove that sum of the remote angles is equal to the external angle. He begins by translating $\triangle ABC$ by vector $\langle \overrightarrow{AC} \rangle$ placing $\angle 2 \cong \angle B'CC'$ in the interior of the external angle. $\overline{AB} \parallel \overline{CB'}$ because translations form parallel lines. $\angle 3 \cong \angle 3$ because of the reflexive property.



How would he complete this proof?



- 3) Megan is trying to prove that the sum of the remote angles is equal to the external angle. She begins by stating that:
 $m\angle 1 + m\angle 2 + m\angle 3 = 180$ because the interior angles of a $\triangle = 180^\circ$.
 $m\angle 3 + m\angle 4 = 180^\circ$ because linear pairs are supplementary.

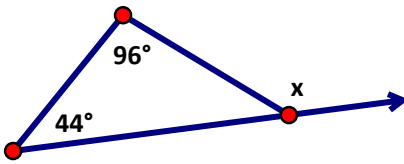


How would she complete this proof?



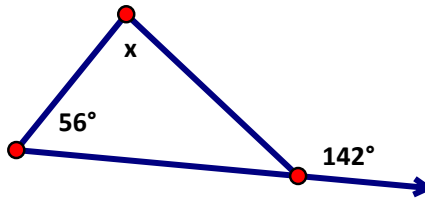
4) Find the value of x .

a)



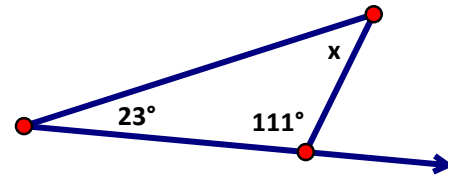
$x =$ _____

b)



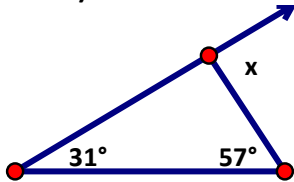
$x =$ _____

c)



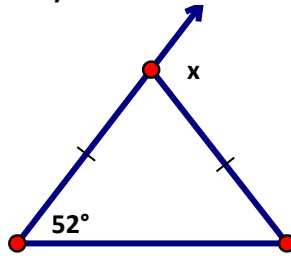
$x =$ _____

d)



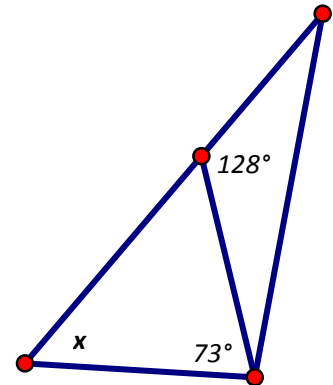
$x =$ _____

e)



$x =$ _____

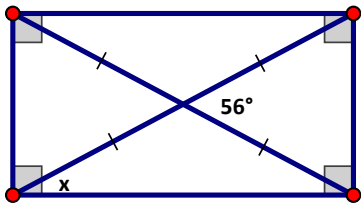
f)



$x =$ _____

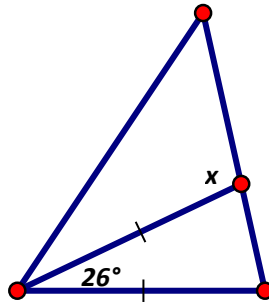
5) Find the value of x .

a)



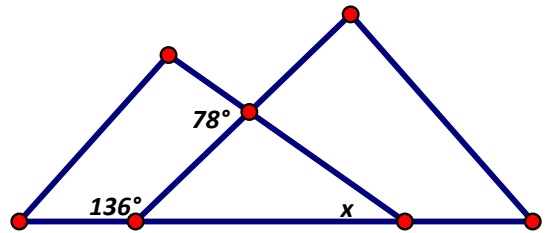
$x =$ _____

b)



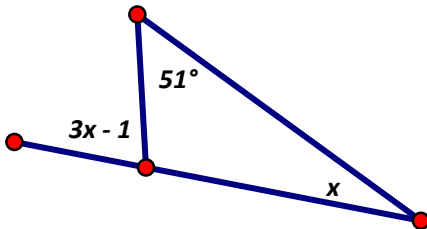
$x =$ _____

c)



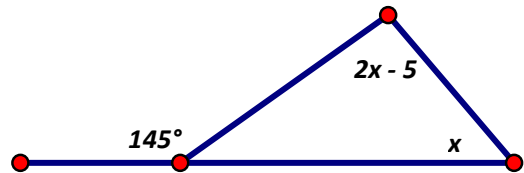
$x =$ _____

d)



$x =$ _____

e)



$x =$ _____