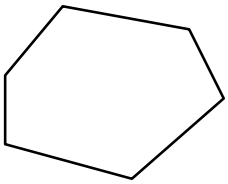
Using Interior Angle Sums: Classwork

1. Find the interior angle sum of each of the following polygons. Show your work.

a.



b. 85-sided polygon

c. 150-sided polygon

2. How many sides does a polygon have if the sum of its angle measures is 1980°?
Use the formula to find your answer. Show your work!

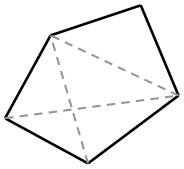
3. How many sides does a polygon have if the sum of its angle measures is 12,600°?
Use the formula to find your answer. Show your work!

4. Freddy wanted to find the interior angle sum of the polygon shown, but made a mistake! Look at his work and then explain what he did wrong.

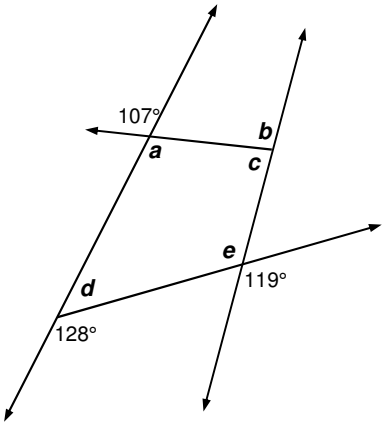
First I cut up the polygon into triangles.

Since there are 5 triangles, I multiplied 5 times 180°.

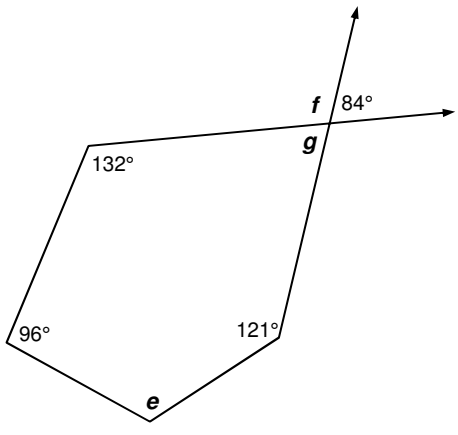
5 × 180° = 900°



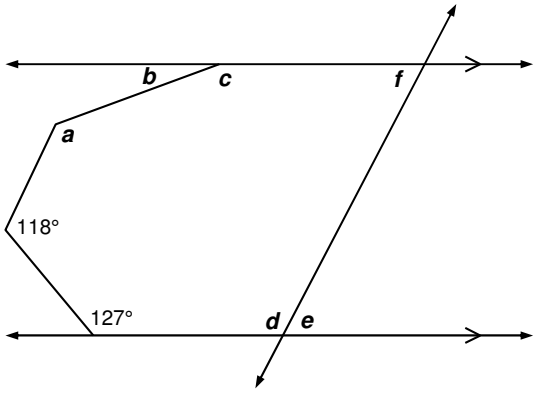
5. Find the unknown angle measures.



6. Find the unknown angle measures.



7. Complete the statements/reasons table if $m\angle b = 26°$ and $m\angle e = 50°$.

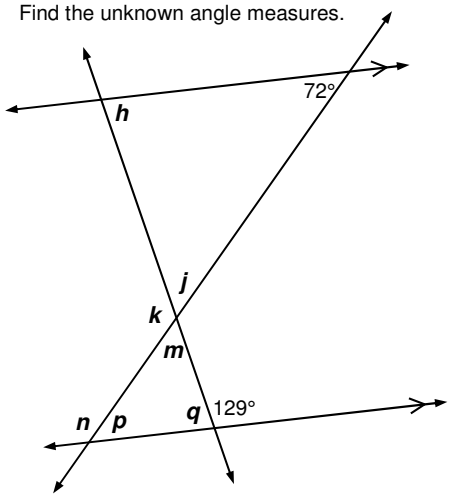


Statements	Reasons
1. $m\angle c =$	
2. $m\angle d =$	
3. $m\angle f =$	
4. $m\angle a =$	

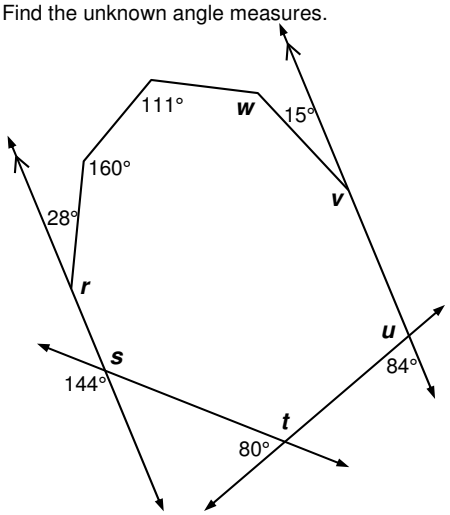
8. A triangle has its largest interior angle 8° less than ten times the measure of its smallest interior angle. The third angle is 1° more than six times the measure of the smallest angle. What are the three angles?

Let x = the measure of the smallest angle. Write and solve an equation based on the interior angle sum.

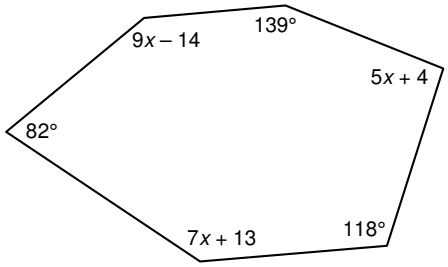
9. Find the unknown angle measures.



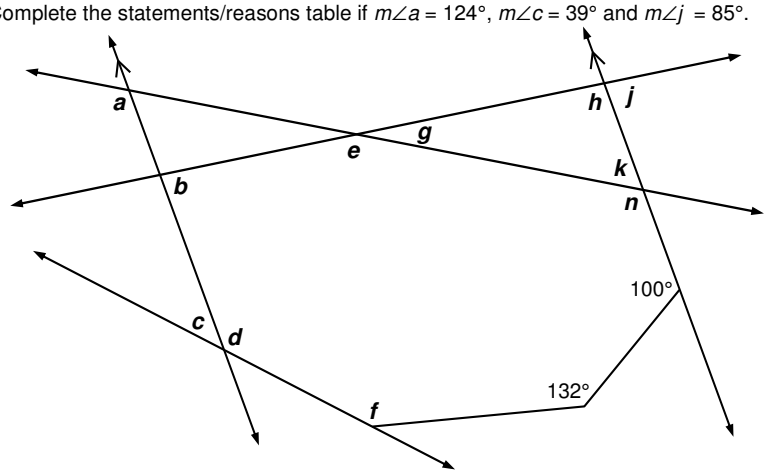
10. Find the unknown angle measures.



11. Use what you know about interior angle sums to find the measure of each angle.
Show your algebra work.



12. Complete the statements/reasons table if $m\angle a = 124°$, $m\angle c = 39°$ and $m\angle j = 85°$.



Statements	Reasons
1. $m\angle d =$	
2. $m\angle n =$	
3. $m\angle k =$	
4. $m\angle h =$	
5. $m\angle g =$	
6. $m\angle e =$	
7. $m\angle b =$	
8. $m\angle f =$	

13. How many sides does a polygon have if the sum of its angle measures is 7380°?
Use the formula to find your answer. Show your work!