PATTERNS IN INTERIOR ANGLES

Step 1: Observations

Watch the video here:

https://learn.k20center.ou.edu/lesson/1169/Interior%20Angles%20TikTok.mp4?rev=5015

What is his logic for his claim? What evidence do you have of his logic?

Fun Bonus: What is the most obvious mistake he made?

Go to the Polygon interior angle sum patterns page on GeoGebra:
https://www.geogebra.org/m/qqx4vtKs

Based on what you are seeing, what do you think the definition of **interior angles** is?

What is the connection between the number of sides and the number of interior angles for any polygon?

Step 2: Math Data

Move the slider points around, and document at least three versions of each polygon. Record the individual interior angle measurements and their sums in the table below.

Triangle			
Interior Angle 1	**Interior Angle 2**	**Interior Angle 3**	**Σ Angles**

Quadrilateral				
Interior Angle 1	**Interior Angle 2**	**Interior Angle 3**	**Interior Angle 4**	**Σ Angles**

Pentagon					
Interior Angle 1	**Interior Angle 2**	**Interior Angle 3**	**Interior Angle 4**	**Interior Angle 5**	**Σ Angles**

Rounding: Some of the angle measures have partial degrees that are rounded. So, we only see whole numbers. How do you see this in your data?

Even with these rounding errors, can you see a pattern in your data? How do you know you should consider, but eventually ignore, the differences due to rounding?

Step 3: Inferring and Drawing Conclusions

What do you think is the main takeaway about the sum of interior angles in polygons?

What is the trend between the number of sides of a polygon and the sum of the interior angles?

Step 4: The Formula

S = The sum of the interior angles

n = The number of sides of a polygon

Using your data from Step 2, identify which of these formulas is correct:

$$S = 360n - 180n \qquad S = 360n \qquad S = 180(n - 2)$$

How do you know? What was your thought process? Write out your work.

Use the formula you selected to fill in the table below.

Polygon	Sum of Interior Angles (Show Your Work!)
Heptagon	
15-gon	
Decagon	
Your Choice: n = _____	

Is the trend you predicted between the number of sides of a polygon and the sum of the interior angles still true?

Step 5: Building a Claim

Watch the video again:
https://learn.k20center.ou.edu/lesson/1169/Interior%20Angles%20TikTok.mp4?rev=5015

Based on everything you've learned, do you agree with his logic and claim?

Why?

What would you include to strengthen the claim?

What is something else you think could be "ranked" based upon the sum of its interior angles?

Have I ruined TikTok for you yet?