

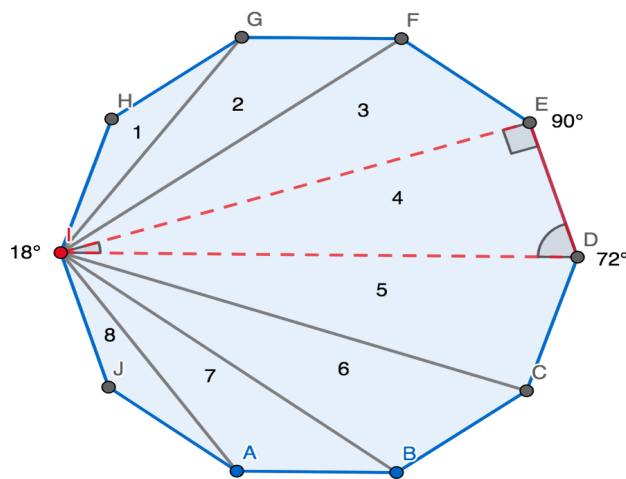
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10.1 Geometry

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Polygon Internal Angles Theorem

The sum of the internal angles of a polygon is related to the number of its sides by the formula $S = (n - 1)180^\circ$. The proof depends on the division of the polygon into triangles, shown in Figure 1.



The formula to find the sum of the measures of the internal angles of a polygon is $S = (n - 1)180^\circ$. The s represents the amount of sides the polygon has, the n represents the number of triangles that are in the polygon all connected to one vertex. Since all the triangles are connected to one point, each polygon has two less triangles than the amount of sides it has. The initial pattern of polygon sides versus the sum of angle measures is shown in Table 1.

Table 1:

n	$m<$	Sum of angles
3	60	180
4	90	360
5	108	540
6	120	720
n	$m< V= \frac{(n-2)180^\circ}{n}$	$S= (n-2)180^\circ$