






## Geometry of Gerrymandering Worksheet & Study Guide

Name	Definition	Formula	Picture
<b>Polsby-Popper Compactness Score</b>	Compare the area of the district to a circle with the same perimeter. If the area of the circle is larger than the area of the district, the score is low, which indicates gerrymandering!	$PP(S) = 4\pi \frac{A}{P^2}$	
<b>Schwartzberg Score</b>	Create a circle with the same area as the district. Compare the district's perimeter to the circle's perimeter.	$Sch(s) = \frac{C}{P} = \frac{2\sqrt{\pi A}}{P}$	
<b>Reock Score</b>	Create the minimum circle that contains the area of the district. Compare the district's area to the area of the circle.	$R(S) = \frac{A}{A_{MC}}$	
<b>Convex Hull Measure</b>	Create the smallest shape containing the district in which any two points can be connected by a line segment that stays in the region. Compare the district's area to the area of the created shape.	$CH(S) = \frac{A}{A_{CH}}$	

<b>Length-Width Score</b>	Create the minimum bounding rectangle that contains the district. Compare the length of the rectangle to the width of the rectangle.	$LW(S) = \frac{W}{L}$	
<b>X-Symmetry</b>	Flip a district across the horizontal line running through the middle of it. Compare the overlapping area between the district and the flipped version and the original area of the district.	$X(S) = \frac{A_o}{A}$	