1056-91-714   **Michael A Jones*** (`maj@ams.org`), Mathematical Reviews, 416 Fourth Street, Ann Arbor, MI 48103, and **Jennifer M. Wilson** (`wilsonj@newschool.edu`), The Eugene Lang College, The New School for Liberal Arts, Department of Mathematics, New York, NY 10011. *The Evaluation and Comparison of Thresholds for Divisor Methods.*

Of crucial interest in any apportionment method are the thresholds or lower and upper bounds for the percentage of population that are necessary and sufficient for a state to receive a particular number of seats. Palomares and Ramirez equated thresholds with the solutions of optimization problems. Using an intuitive concavity lemma, we solve the optimization problems for divisor methods of apportionment with concave up or concave rounding functions. This allows us to prove explicit formulas for threshold values of certain divisor methods—thereby increasing the class of divisor methods for which thresholds may be calculated. We use the formulas to analyze the behavior of these thresholds, and compute and compare threshold values for Hill-Huntington's method (used to apportion the U.S. House of Representatives), methods based on the identric and logarithmic means, and other divisor methods. (Received September 16, 2009)