

Meeting: 1003, Atlanta, Georgia, MAA CP R1, MAA Session on My Three Favorite Original Calculus Problems

1003-R1-1621 **Anand Kumar*** (anandkumar@teacher.com), Ramanujan School of Mathematics, Shanti Kutir, Candpur Bela, Patna-800 001, India. *Non-standard problems on Definite Integrals.*

The common theme in my problems is the relation between definite integrals and areas. The relation between definite integrals and areas is generally presented in elementary calculus with the objective of computing areas via the fundamental theorem of calculus. This assumes, of course, that an anti-derivative can be evaluated in closed form in terms of elementary functions. There are situations, however, where areas are rather easy to evaluate using elementary formulas (e.g., for the areas of triangle, rectangle, rhombus, trapezium, circular sector etc.), but anti-derivatives are either difficult or impossible to evaluate in closed form. In these situations, it is interesting to turn the relation between definite integrals and areas around, so one can pose problems on definite integrals that can not be evaluated by fundamental theorem of calculus but could be evaluated by computation of areas. My examples will be the definite integrals of functions that involve the absolute value function, the greatest integer function, and the max/min of functions. (Received October 05, 2004)