

1106-H5-128

**Stanley Rothman\*** (stanley.rothman@quinnipiac.edu), 15 stacy ct, cheshire, CT 06410. *A New Linear Formula to Predict a Team's Winning Percentage.*

Last Year at the Joint Mathematical Convention in Baltimore I presented my new linear formula for predicting a team's winning percentage ( $W\%$ ) based on the runs scored (RS) and runs allowed (RA) by a team. This linear formula was shown to be effective for Major League Baseball (MLB) for the years 1998-2013. Using the same techniques, I developed a linear formula for the NFL for 2002-2013 and for the NBA for 2004-2013. For MLB,  $W\% = .000683*(RS-RA) + .50$ , for the NFL,  $W\% = .001538*(PS-PA) + .50$  and for the NBA,  $W\% = .000364*(PS-PA) + .50$ . PS is the points scored by a team and PA is the points allowed by a team. This year's talk will first review the development of these linear formulas and why my formula for baseball and Bill James' Pythagorean Theorem of Baseball are both effective predictors of a team's  $W\%$  for the years 1998-2013. In the question session after my talk last year a member of the audience remarked that my theorem would not work for the earlier years of baseball. With the help of a junior math major Alex Everett, this year's talk will use both the Chi-Square Goodness-OF-Fit Test and the Confidence Interval Test for One Mean to establish that my linear theorem and Bill James' theorem are both effective predictors for winning percentages for the years 1901-2013. (Received July 25, 2014)