MATH 311/510 HOMEWORK–11 DUE AT THE BEGINNING OF CLASS ON TUESDAY, NOVEMBER 29.

(1) Don’t forget to complete the last observation write-up, if you did not do this last week.

(2) The book *The Shame of the Nation*, by Jonathan Kozol, will be on reserve in the math library (in the math/physics building). Read (at least) chapter 6: *A Hardening of Lines*, the curriculum note to teachers, which begins on page 327, and the appendix on per-pupil spending in metropolitan area schools. Read more if you like. The author has been researching inner-city schools for several decades.

(3) (a) Think about how you would teach your students how and why we extend the domain of the factorial function to the integer zero. Write up your thoughts. Keep in mind our discussions on multiplication of integers and on extending exponents to negative and fractional exponents.

(b) *Optional:* Greg asked for a consistent explanation of fractional exponents. Carefully write up your ideas on this.

(4) In the recent MT article, Chazan and Sandow discuss an activity which focuses on reasoning and sense-making in an algebra class. In class, you picked a topic from the Common Core Standards for Mathematics. Think about how you might teach this topic with an emphasis on reasoning and sense-making. To this end, do at least the following:

(a) Find more than one way that you could present the material, or that your students may approach it. For example, the MT article gave graphic, numeric and symbolic approaches.

(b) Try to think of questions your students may ask that would stimulate a discussion about legal reasoning or strategic reasoning. Alternatively, think of questions you could ask your students in order to stimulate this discussion.

(c) Write-up your ideas and be prepared to present them to the class. (A five to fifteen minute discussion on your topic is enough.)