

Problem ♣–1

Due in DSC 235 by 12 noon, Friday, August 24, 2018

Problem: Prove that for every $x \in \mathbb{R}$ we have

$$e^x \leq e^{x^2} + x.$$

RULES:

- The competition is open to all *undergraduate* UNO students and it is supervised by *Upper Curriculum Committee* of the Mathematics Department.
- Submit your solutions to Andrzej Rosłanowski in DSC 235 or to his mailbox.
- Every nontrivial step/claim in your solution must be justified. There are no partial credits, so rather err on the side of caution and provide more explanations than less. (Needless to say, they should be written clearly and legibly.)
- The winners of Fall 2018 edition of POW will be determined at the end of the semester based on the number of correct solutions submitted.
- Problems will be posted by Friday 5pm and the solutions are due by the following Friday 12 noon.

PRIZES:

- The semester prizes will be determined by the Upper Curriculum Committee in a couple of weeks.
- Everybody scoring in the POW Competition qualifies for the grand finale:
 $\frac{\pi}{2}$ *Mathematical Competition.*