

Problem ♡–6

Due in DSC 235 by 12 noon, Friday, October 20, 2017

Problem A: *Find all nonnegative integers n such there are integers a and b with the property*

$$n^2 = a + b \quad \text{and} \quad n^3 = a^2 + b^2.$$

Problem B: *Find all primes p such that $p^2 + 11$ has exactly six different divisors (including 1 and the number itself).*

RULES:

- The competition is open to all *undergraduate* UNO students.
- Please submit your solutions to Andrzej Roslanowski in DSC 235 or to his mailbox. (Needless to say, they should be written clearly and legibly.)
- The winners will be determined each 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:

- Winners will received books published by the American Mathematical Society. The titles actually awarded will be selected in cooperation with the awardees.
- In Summer 2018, there is a research opportunity possibly that could lead to an Erdős Number (3 or possibly 2). Strong performance in POW is one of the crucial prerequisites.