

I U P U I  
MATH CLUB TEASER #3

October 17, 2008  
(due October 24, 2008)

SOLUTION

Eve discovered the counterfeit stack with one weighing.

She numbered the stacks from 1 to 10, then took one coin from stack one, two coins from stack two, three from stack three, and so on. She then weighed the entire sample (a total of 55 coins). If all coins were genuine, the weight would be 55 times the weight of a coin; but some fakes are included in the sample. If the counterfeit stack is number  $n$ , the sample will have  $n$  counterfeit coins, and weigh  $n$  grams more than it should. The excess weight in grams then indicates the counterfeit stack.

SOLVED BY:

Captain Nemo, Dream Team, the Residues.