

I U P U I  
MATH CLUB TEASER #3

October 17, 2008  
(due October 24, 2008)

The numismatist Professor Zerep has donated 100 rare coins to the Bourbaki Museum. The coins, all identical gold pieces, arrived in 10 stacks of 10 coins each. One entire stack is counterfeit, and Eve, the collection curator, does not know which one. She knows the weight of an authentic coin and also that each counterfeit weighs one gram more than it should. Eve brings out her scale and proceeds to identify the counterfeit stack.

What is the smallest number of weightings necessary to determine which stack is counterfeit?

The IUPUI Math Club invites everybody to submit solutions to its weekly recreational mathematics problem. Interested individuals and teams of up to four participants must submit a cover sheet (available at [jagmath.usg.iupui.edu](http://jagmath.usg.iupui.edu)) together with their written solution. At the end of the semester, every IUPUI student that sent a correct solution will receive a certificate of merit. Prizes will be distributed among the IUPUI undergraduate teams that submit the most correct solutions.

Solutions are due one week after each problem is posted, and should be faxed to (317) 274-3460, dropped off in person at LD 270, or sent by campus or U.S. mail to:

**Math Club Teaser**  
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