April 5, 2000

Authenticating integers and arithmetic

1. (Casting out ...) Try to do this problem *without* using a computer or a calculator and *without* directly calculating the number below.

Which is 26^8?

Explain briefly why all but one of the following candidates *can't* be correct. (Please give some reason even for the silly ones!)

a) 12   b) 1403 34806 89017 60706 35406   c) 20 88230 75767

d) 20 88230 64576   e) 20 88270 64576   f) 20 88276 04576

2. (ISBN) a) Get a book. Tell me its author, title, publisher, and ISBN.

b) Write a verification that the ISBN given in the book you got satisfies the mod 11 check condition.

c) Change one digit of the original ISBN. Write a verification that this new candidate for an ISBN no longer satisfies the mod 11 check condition.

d) Interchange (transpose) one nonadjacent pair of digits of the original ISBN. Write a verification that this new candidate for an ISBN no longer satisfies the mod 11 check condition.

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