PALINDROMES AND MATH MAGIC

SATISH K. PANDEY

1. Palindromes and Divisibility by 11

Problem 1.1. *A number like* 12321 *is called Palindrome because it reads the same backwards as forwards. A friend of mine claims that all palindromes with four digits are exactly divisible by* 11. *Are they?*

Hint : Think of some 4 digit palindromes and verify. Then try to prove it.

Fact
"*If a and b are divisible by* 11 *then so is* $a + b$."

Problem 1.2. *Answer in "yes" or "no" with reasons.*
(1) *Is* $22 + 33$ *divisible by* 11*?*
(2) *Is* $121 + 132$ *divisible by* 11*?*

Department of Mathematics, University of Houston, Houston, Texas 77204-3476, U.S.A.
E-mail address: satish@math.uh.edu