## PROBLEM OF THE WEEK

 Solution of Problem No. 1 (Fall 2003 Series)Problem: Determine the integer $n$ with the properties:
a) $n$ is a prime less than 6000 ,
b) the number formed by the last two digits of $n$ is $<10$, and
c) if the decimal digits of $n$ are reversed to obtain $N$, then $N-n=999$.

Solution (by Troy Siemens, Asst. Prof. Math \& CS, Virginia Military Institute)
Write $n=a * 1000+b * 100+c * 10+d$ with $1 \leq a \leq 5$ and $0 \leq b, c, d \leq 9$. By b), $c=0$. Also, $N-n=(d-a) * 999-b * 90=999$. This forces $b=0$ and $d=a+1$. The only such numbers are $1002,2003,3004,4005$, and 5006 , of which only 2003 is prime. Hence, solution is $n=2003$.

Also solved by:
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Others: Shishir Biswas (8th Gr. E.Tipp Middle Sch), Marco Afonso Assad Cohen (IME, Brazil), Jim Hoffman (Av. Tech Cntr, Indpls), Duc Van Huynh (AASU), Steven Landy (Phys at IUPUI), Namig Mammadov (Baku, Azerbaijan), Les Meyer (Gr. IUPUI), Gagan Tara Nanda (Sr. U. Calif), Sean O’Rourke (Cal. Poly), Rob Pratt (UNC, Chapel Hill) Taryn Quattrocchi (12th Gr. Warren Central HS) Benjamin K. Tsai (NIST)

