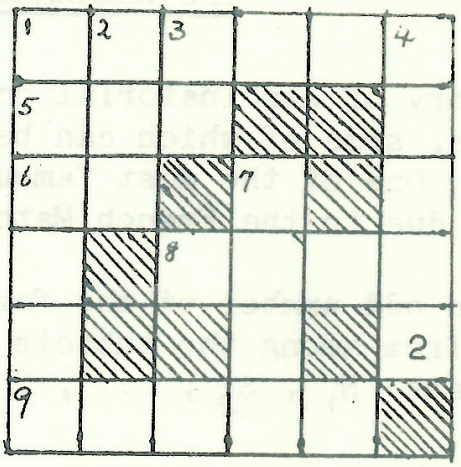
CROSS NUMBER PUZZLE.

Clues

Across		Down	
1	six	1	four
5	three	2	seven
6	two	3	six
8	three	4	three
9	five.	7	seven.



Solution Next Issue.

Each answer is the recurring block of digits in the "decimal" expansion of a rational number $\frac{a}{p}$, using S as the base of the number system.

The clue gives the value of S, and p is always a prime number less than 50.

For example, if the clue for a six digit answer was "three", a possible answer would be

010212 since $\frac{1}{7} = (.\overline{010212})_3$.

The only other possible answers would be 021201, 102120, 120102, 201021, and 212010, obtained by expressing $\frac{2}{7}, \frac{3}{7}, \frac{4}{7}, \frac{5}{7}$ and $\frac{6}{7}$ as decimals using 3 as base. See the article "Decimal Expansions of Rational Numbers" and in particular, the answer of Q5.
