



PROBLEM OF THE WEEK #5  
(Fall 2018)

In the division problem shown below, each X stands for a digit other than 1 or 5. Reconstruct the entire problem.

$$\begin{array}{r} \phantom{135} \phantom{0} \phantom{0} \phantom{0} \phantom{0} \phantom{0} \phantom{0} \phantom{0} \phantom{0} \\ 135 \overline{) 2970} \\ \underline{270} \phantom{0} \\ 270 \\ \underline{270} \\ 0 \end{array}$$

**Solution:**

Each digit in the quotient, when multiplied by 135, gives a three-digit product. The three-digit multiples of 135 are:

$D$	1	2	3	4	5	6	7
$135D$	135	270	405	540	675	810	945

All but one of these contain forbidden digits. Thus  $Q = 22$ , and the division problem is the one shown above.

**Source:**

[RR60] Don Reinfeld and David Rice, *101 Mathematical Puzzles and How to Solve Them*, Sterling Publishing Co., Inc., New York, 1960.