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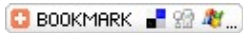
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Features



# Mysterious number 6174

by Yutaka Nishiyama



## Number guessing puzzles

The first beautiful puzzle was by Yukio Yamamoto in Japan:

*If you multiply two five digit numbers you can get the answer 123456789. Can you guess the two five digit numbers?*

$$\begin{array}{r}
 \phantom{00000} \\
 \phantom{00000} \\
 \times \phantom{00000} \\
 \hline
 1 \ 2 \ 3 \ 4 \ 5 \ 6 \ 7 \ 8 \ 9
 \end{array}$$

And the second, very similar puzzle:

$$\begin{array}{r}
 \phantom{00000} \\
 \phantom{00000} \\
 \times \phantom{00000} \\
 \hline
 1 \ 2 \ 3 \ 4 \ 5 \ 6 \ 7 \ 8 \ 4
 \end{array}$$

### HINT

Decompose the numbers into their prime factors to help you solve the puzzles.

$$123456789 = 3 \times 3 \times 3607 \times 3803$$

and

Mysterious number 6174

$$123456784 = 2^4 \times 11^2 \times 43 \times 1483$$

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