

Fractured Multiplication

Here is a multiplication problem that was partially erased.

$$\begin{array}{r} \times \quad \quad \mathbf{1} \quad _ \\ \quad \quad \quad _ \\ \hline \quad \quad \mathbf{9} \quad _ \end{array}$$

1. Can you fill in a possible set of missing digits?
[The missing digits need not be the same as one another.]
2. How many possible answers are there? What are they?
3. How do you know you found all the possible answers?