Solution. We have
\[ \left( 1 - \frac{b}{100} \right) \left( 1 - \frac{a}{100} \right) \cdot 100.00 = 79.17, \]
which can be rewritten as
\[ (100 - b)(100 - a) = 7917. \quad (1) \]
Because \( a \) and \( b \) are “integer percents”, we have \( 0 \leq a, b \leq 100 \), so it follows that in (1), \( 100 - a \) and \( 100 - b \) are also integers between 0 and 100. Thus (1) exhibits 7917 as a product to two two digit integers. We can factor 7917 into a product of two positive integers as follows:
\[
7917 = 1 \cdot 7917 = 3 \cdot 2639 = 7 \cdot 1131 = 13 \cdot 609 = 21 \cdot 377 = 29 \cdot 273 = 39 \cdot 203 = 87 \cdot 91.
\]
It follows that \( \{100 - b, 100 - a\} = \{87, 91\} \). Because \( a < b \), we must have \( a = 9 \) and \( b = 13 \).

Several students solved this problem by “guess and check.” Others gave non integer answers. However, without the integer restriction there are an infinite number of solutions.