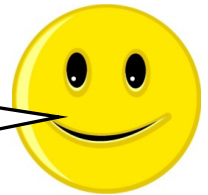# Challenge: Adding with 121212

On December 12th 2012 the date is: 12.12.12.
This made me think of an addition challenge!

**1  2  1  2  1  2**

Using each of the numbers above once, how many addition questions can you find. Start by finding all the possible additions of two 3-digit numbers.
*e.g. 222 + 111 = 333*

☐☐☐ **+** ☐☐☐ **=** ☐

You will need to make some decisions as whether certain combinations are the same or different.
*e.g.  is 112 + 221 the same as 221 + 112?*

1 2 1 2 1 2

☐ ☐ ☐ + ☐ ☐ ☐ = ☐

☐ ☐ ☐ + ☐ ☐ ☐ = ☐

☐ ☐ ☐ + ☐ ☐ ☐ = ☐

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☐ ☐ ☐ + ☐ ☐ ☐ = ☐

Answers

Look for a methodical , well ordered approach.

Some possibilities:

111 + 222 = 333

112 + 221 = 333

112 + 212 = 324

112 + 122 = 234

121 + 221 = 342

121 + 212 = 333

121 + 122 = 243

122 + 211 = 333

122 + 121 = 243

122 + 112 = 234

211 + 221 = 432

211 + 212 = 423

211 + 122 = 333

212 + 211 = 423

212 + 121 = 333

212 + 112 = 324

221 + 211 = 432

221 + 121 = 342

221 + 112 = 333

222 + 111 = 333

Decision: can some of these can be eliminated as being the same e.g. 222 = 111 and 111 + 222

Extension: try adding three 2-digit numbers eg 22 + 12 + 11