

The answer after the subtraction always has 9 in the tens column. In ^{the} this answer, the hundreds and ones digit always add up to 9. This means, when you do the addition:

- the tens digit will be 8 ($90+90=180$)
- the ones digit will be 9 as both ones digit add up to 9
- the hundreds and thousands digit will be 10. It would be 9 (as both hundreds digit adds up to 9) however, there is a hundred digit carried over from the tens addition ($90+90=180$)

$$\begin{array}{r}
 \overset{12}{3}4\overset{1}{8}2 \\
 - 243 \\
 \hline
 \overset{10}{1}98 \\
 + \overset{10}{8}91 \\
 \hline
 1089
 \end{array}$$

Annotations: "always 9" with arrows pointing to the 9s in the tens place of both addends. "8+1=9" written next to the 8 and 1 in the tens place.

$$\begin{array}{r}
 \overset{11}{6}7\overset{1}{2}5 \\
 - 527 \\
 \hline
 \overset{10}{1}98 \\
 + \overset{10}{8}91 \\
 \hline
 1089
 \end{array}
 \qquad
 \begin{array}{r}
 \overset{8}{4}\overset{5}{1}83 \\
 - 369 \\
 \hline
 \overset{10}{1}594 \\
 + \overset{10}{4}95 \\
 \hline
 1089
 \end{array}$$

Annotations: "always 9" with arrows pointing to the 9s in the tens place of both addends in both problems. "8+1=9" and "4+5=9" written next to the tens digits.

This works with 2 digit numbers aswell - it all adds up to 99:

$$\begin{array}{r}
 \overset{6}{7}2 \\
 - 27 \\
 \hline
 45 \\
 + 54 \\
 \hline
 99
 \end{array}
 \qquad
 \begin{array}{r}
 \overset{7}{8}4 \\
 - 48 \\
 \hline
 36 \\
 + 63 \\
 \hline
 99
 \end{array}
 \qquad
 \begin{array}{r}
 \overset{5}{6}3 \\
 - 36 \\
 \hline
 27 \\
 + 72 \\
 \hline
 99
 \end{array}$$

This exception also applies to other numbers where the thousands digit is 9 and the tens digit is larger than the hundreds digit (9682, 9673)

And 4 digit numbers (adds up to 10890)

$$\begin{array}{r}
 \overset{7}{4}\overset{6}{8}\overset{1}{7}2 \\
 - 2874 \\
 \hline
 \text{[crossed out]}
 \end{array}
 \qquad
 \begin{array}{r}
 \overset{7}{4}\overset{6}{8}\overset{1}{7}2 \\
 - 2784 \\
 \hline
 2088 \\
 + 8802 \\
 \hline
 10890
 \end{array}
 \qquad
 \begin{array}{r}
 \overset{5}{6}\overset{3}{4}3 \\
 - 3465 \\
 \hline
 2178 \\
 + 8712 \\
 \hline
 10890
 \end{array}
 \qquad
 \begin{array}{r}
 \overset{8}{9}\overset{4}{4}\overset{1}{8}2 \\
 - 2549 \\
 \hline
 6903 \\
 + 3096 \\
 \hline
 9999
 \end{array}
 \qquad
 \begin{array}{r}
 \overset{6}{9}\overset{5}{1}82 \\
 - 2679 \\
 \hline
 7083 \\
 + 3807 \\
 \hline
 10890
 \end{array}$$

Annotations: "an exception. why?" written in red next to the boxed 4-digit subtraction problem.