Handy Hint: 92 x 93

STEP 1 Figure out how far each number is from 100.

$$\begin{array}{rl} 93 & \rightarrow 100 - 93 = \textcircled{7} \\ \times\ 92 & \rightarrow 100 - 92 = \textcircled{8} \end{array}$$

STEP 2 To find the ones and tens digits of the product, multiply your numbers from STEP 1.

$$7 \times 8 = \boxed{56}$$

$$\begin{array}{r} 93 \\ \times\ 92 \\ \hline 56 \end{array}$$

STEP 3 Now, add your numbers from STEP 1, and subtract the total from 100. The difference will be the hundreds and thousands digits of the product!

$$7 + 8 = 15$$
$$100 - 15 = \boxed{85}$$

$$\begin{array}{r} 93 \\ \times\ 92 \\ \hline \underline{85}56 \end{array}$$

Professor Panda's Practice Plus Page

To see how "Handy Hint : 92 x 93" works, let's write it as two binomials (as in STEP 1) and find the product.

$92 = 100 - 8 \qquad 93 = 100 - 7$

Finding the product of two binomials.

$(x - b)(x - c) = x^2 - (b + c)x + bc$

STEP 1

$(100 - 8)(100 - 7) = 100^2 - (8 + 7)100 + 8(7)$

STEP 2

$= 10{,}000 - 15(100) + 56$

STEP 3

$= 10{,}000 - 1{,}500 + 56$

$= 8{,}500 + 56$

$= 8{,}556$

Steps for "Handy Hint: 92 x 93"

STEP 1: Figure out how far each number is from 100.

STEP 2: Multiply your numbers from STEP 1 to find the product's ones and tens digits.

STEP 3: Add your numbers from STEP 1, and subtract the total from 100. The difference will be the product's hundreds and thousands digits.

Professor Panda's Points to Ponder

Can you modify this handy hint to make it work for numbers over 100? Can it work for numbers in the eighties?