



Unit 3 Open Response Assessment

Finding a Mistake in a Subtraction Problem

Mia wants to solve this problem: $552 - 153 = ?$

She begins by making an estimate.

Estimate: $550 - 150 = 400$

Then she uses expand-and-trade subtraction to find an exact answer, but her answer is not close to her estimate. This is her work:

$$\begin{array}{r}
 140 \\
 40 \quad 12 \\
 552 \rightarrow 500 + 50 + 2 \\
 - 153 \rightarrow 100 + 50 + 3 \\
 \hline
 400 + 90 + 9 = 499
 \end{array}$$

“Oops,” said Mia, “I didn’t cross out 500 and write 400.”

Explain **why** not changing 500 to 400 is a mistake.

(Hint: Use what you know about place value in your answer.)