

Example: Insert parentheses into the next line to make the statement true.

$$2 + 3 \cdot 4 - 1 + 3^2 = 100$$

Solution: We use trial and error until we obtain a true statement.

$$(2 + 3 \cdot 4 - (1 + 3))^2 = 100$$

This is correct, since

$$\begin{aligned}(2 + 3 \cdot 4 - (1 + 3))^2 &= && \text{innermost parentheses} \\(2 + 3 \cdot 4 - 4)^2 &= && \text{multiplication} \\(2 + 12 - 4)^2 &= && \text{addition} \\(14 - 4)^2 &= && \text{subtraction} \\10^2 &= && 100\end{aligned}$$

Insert parentheses to make each of the following statements true.

1. $12 - 1 + 3 \cdot 5 - 2^2 + 1 = 1$
2. $12 - 1 + 3 \cdot 5 - 2^2 + 1 = 21$
3. $12 - 1 + 3 \cdot 5 - 2^2 + 1 = 39$
4. $12 - 1 + 3 \cdot 5 - 2^2 + 1 = 17$