

# thought exercise

## QUANTITATIVE COMPARISONS

In our Quantitative Comparison Thought Exercise, learners evaluate the expression on the left in comparison to the expression on the right, ultimately deciding whether the expressions are equivalent or less than/greater than. This Thought Exercise occurs in a whole group format, with the community of mathematicians engaging in discourse together, discussing and justifying ideas. Typically we have one learner evaluate a particular expression and then explain/justify how it compares to the other; the learner does this while standing in front of the mathematics community. Debate often ensues as the community evaluates the quality of the thinking and wrestles with whether they agree or disagree with the justification.

7(180)



90(14)

*GCF of 16 and 48*



*LCM of 3 and 5*

12(37) + 18(12)



150(4)

14( $13\frac{1}{3}$ )



7(27)

33(33)



$5^2 \cdot 7^2$

### Context of Instructional Design

This sample Thought Exercise was created for Green Band, a group of 4th and 5th graders in their second year of studying with us. The particular prompts highlighted here were strategically designed to push learners to look for efficiency as they evaluate multiplicative relationships. As Green Band worked through this particular Thought Exercise, the learners realized that finding the actual product was not necessarily the most efficient route. For example, in the first prompt the mathematicians saw that they could compare the quantities by changing the count, rather than simplifying the entire expression. They chose to commute the first prompt, 7(180), and instead count 7's: 180(7). In the second prompt they decided to substitute 14 for 2·7, thus giving them 90(2·7). They then associated to count 7's, thus having (90·2)7 or 180(7), which was equivalent to the prompt on the left side.