



Alignment 1: 5.OA.2

Grade 5

Domain OA: Operations and Algebraic Thinking

Cluster Write and interpret numerical expressions.

Standard Write simple expressions that record calculations with numbers, and interpret numerical expressions without evaluating them. For example, express the calculation “add 8 and 7, then multiply by 2” as $2 \times (8 + 7)$. Recognize that $3 \times (18932 + 921)$ is three times as large as $18932 + 921$, without having to calculate the indicated sum or product.

This task is rated +0 (0 ratings) • *Log in if you'd like to rate this task*

Eric is playing a video game. At a certain point in the game, he has 31500 points. Then the following events happen, in order:

- He earns 2450 additional points.
 - He loses 3310 points.
 - The game ends, and his score doubles.
- a. Write an expression for the number of points Eric has at the end of the game. Do not evaluate the expression. The expression should keep track of what happens in each step listed above.
- b. Eric's sister Leila plays the same game. When she is finished playing, her score is given by the expression

$$3(24500 + 3610) - 6780.$$

Describe a sequence of events that might have led to Leila earning this score.

Commentary:

Standard 5.OA.2 asks students to "Write simple expressions that record calculations with numbers, and interpret numerical expressions without evaluating them." This task asks students to exercise both of these complementary skills, writing an expression in part (a) and interpreting a given expression in (b). The numbers given in the problem are deliberately large and "ugly" to discourage students from calculating Eric's and Leila's scores. The focus of this problem is not on numerical answers, but instead on building and interpreting expressions that could be entered in a calculator or communicated to another student unfamiliar with the context.

Solution: Solution

- a. When Eric earns 2450 additional points, his score becomes $31500 + 2450$.

When he loses 3310 points, his score becomes $(31500 + 2450) - 3310$. (Note that this can also be written without the parentheses.)

When Eric's score doubles, the score becomes $2 \times ((31500 + 2450) - 3310)$, which can also be written $2(31500 + 2450 - 3310)$.

- b. Here is a possible sequence of events that might lead to the score given:

- a. At a certain point in the game, Leila has 24500 points.

- She earns 3610 additional points.
- Her score triples.
- She loses 6780 points.

Note that the order of the steps is important; rearranging the steps will likely lead to a different expression and a different final score.