



7.EE Writing Expressions

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Alignment 1: 7.EE.1

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| Grade | 7 |
| Domain | EE: Expressions and Equations |
| Cluster | Use properties of operations to generate equivalent expressions. |
| Standard | Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients. |

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Write an expression for the sequence of operations.

- Add 3 to X, subtract the result from 1, then double what you have.
- Add 3 to X, double what you have, then subtract 1 from the result.

Commentary:

The instructions for the two expressions sound very similar, however, the order in which the different operations are performed and the exact wording make a big difference in the final expression. Students have to pay close attention to the wording: “subtract the result from 1” and “subtract 1 from the result” are very different.

Solution: Solution

- This problem can be done step-by-step. We first add 3 to X:

$$x+3.$$

Then we subtract the result that we just got from 1:

$$1-(x+3).$$

We then double, meaning we multiply this entire expression by 2:

$$2(1-(x+3)).$$

If we choose to simplify this expression, we use the distributive, commutative and associative properties in the following way:

$$\begin{aligned} 2(1-(x+3)) &= 2(1-x-3) && \text{distribute the} \\ &= 2(-x-2) && \text{combining like terms} \\ &= -2x-4 && \text{distribute the 2} \end{aligned}$$

b. Again, we add 3 to x:

$$x+3$$

This time, next we double, meaning multiplying this expression by 2:

$$2(x+3).$$

Then we subtract 1 from the result and we have:

$$2(x+3)-1.$$

If we choose to simplify this expression, we use the distributive and associative properties in the following way:

$$2(x+3)-1=(2x+6)-1 \quad \text{distribute the 2}$$

$$=2x+5 \quad \text{combining like terms}$$

Notice that the final expressions are very different, even though the instructions sounded very similar.