

Task rules

Using each of the numbers from 1 - 10 exactly once and each of the operations + and - at least twice (one will be used three times), make five expressions whose numbers are 17, 17, 8, 1, 2.

Prepping the task

Teacher: Today we are going to build some expressions. Each expression is made up of two numbers from this list (teacher points to list of numbers 1 - 10) and one of these operations (+ + - -) Can someone please tell me an expression?

Student: $8 + 1$

Teacher: Okay. The answer for this is 9. (Teacher writes $8 + 1 = 9$.) I forgot to mention that now the 8 and 1 and one of the + is now gone. (Teacher crosses out on the board.) Can someone give me another expression?

Student: $10 - 1$

(...and so on)

Teacher: Okay. So now we have run out of operations, but we still have two more numbers. (Teacher points at the 3 and the 2.) So, let's make one more expression, and you can use one of the operations + and - a third time.)

Student: $3 - 2$

Teacher: Okay. (Teacher writes $3 - 2 = 1$.) We now have five expressions (teacher points at the five expressions) and five answers (teacher points at the five answers). And these answers came from following two rules. We had to use every number from 1 - 10 exactly once, and we had to use addition and subtraction each at least twice. And if we follow these rules, we will get five answers. So, if we know these rules and we all we had were these answers (teacher erases the expressions leaving just the answers), could we figure out what the expressions were? And, of course, these are not the answers I care about. (Teacher erases the answers.) These are the answers I care about. (Teacher shows 17, 17, 8, 1, 2.)