**PROBLEM SOLVED**
MAKING SENSE OF MATHEMATICS

After watching the *Adding and Subtracting Mentally* video, make sense of the mathematics by taking a closer look at the problem situations and solutions. Use the comments and questions in bold to help you solve the problems and develop strategies for mental addition and subtraction.

An open number line is a tool to help you see the relationships among numbers. An open number line can be any size. When using an open number line, you only need to show the numbers you are using to solve the problem. This video uses an open number line to show the thinking you can use to solve addition and subtraction problems mentally.

Problem 1: Emma just returned from a shopping trip. She bought 17 new outfits but discovered she doesn't have room for any of them in her closet! Emma's closet can hold 45 outfits. If you combine this with the number of outfits she just bought today, what is the total amount of outfits Emma has?

How can you determine the total number of outfits? Add 45 and 17.
How might you mentally compute the number of outfits? Use an open number line to show your thinking.
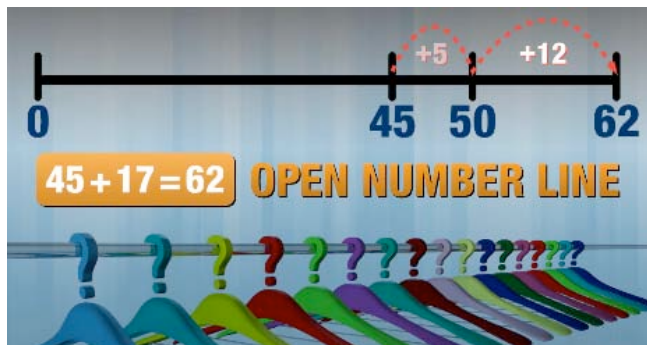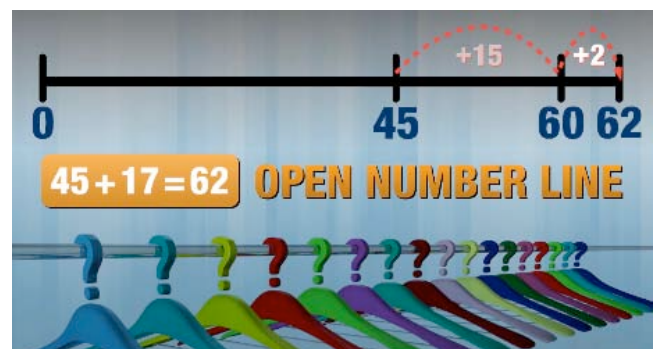

Method 1:
One way to think about this problem is to begin with 45 outfits and add 5 more. This will bring you to 50 outfits (45 + 5 = 50). Then add the remaining 12 outfits for a total of 62 outfits (50 + 12 = 62).

Method 2:
Another way is to start with 45 outfits and add 15 outfits. This will equal 60 outfits (45 + 15 = 60). Then add the remaining 2 outfits for a total of 62 outfits (60 + 2 = 62).

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Both of these methods involve adding a number in two parts. First add a number to reach a multiple of ten, like 50 or 60, and then add the remaining amount to reach the total. It is often easier to add a number in two parts when doing mental calculations than trying to mentally use the standard paper and pencil procedure.

Problem 2: Emma decided to get rid of 26 of the 45 original outfits that were in her closet. How many of the original outfits is Emma keeping?

How can you determine the number of original outfits Emma is keeping?
Subtract 45 – 26.

How might you mentally compute the number of outfits? Use an open number line to show your thinking.
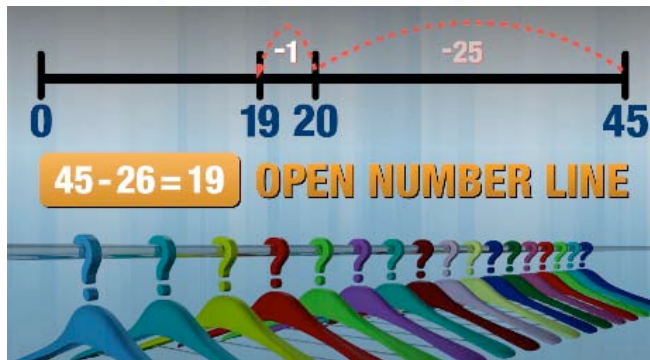
Start with 45 outfits and subtract 25 outfits. This equals 20 outfits (45 – 25 = 20). Then subtract the remaining one outfit leaving 19 outfits (20 – 1 = 19).

Again, it is often easier to compute mentally by breaking a number into two parts. When subtracting, first subtract a number to reach a multiple of ten, like 20, and then subtract the remaining amount.

The open number line helps you see the relationships between numbers so that you can determine an efficient way to add and subtract. With continued experience with open number lines, you will be able to visualize the open number line and compute sums and differences mentally.

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