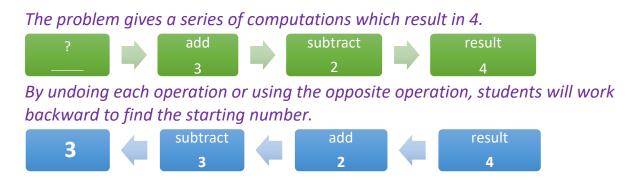# WORK BACKWARD

This strategy can be used when you know the end result but you need to find out something that happened earlier. You must list a series of events and computations starting with the end of the problem and ending with the information presented at the beginning of the problem.

Example 1:

If you add 3 to a number, then subtract 2, you get 4. What's the number?

The problem gives a series of computations which result in 4.

?	→	add 3	→	subtract 2	→	result 4

By undoing each operation or using the opposite operation, students will work backward to find the starting number.

3	←	subtract 3	←	add 2	←	result 4

Example 2:

Ben is trying to decide when to get up in the morning. He needs 40 minutes to get ready for school. It takes him 10 minutes to walk to school. If school starts at 8:30 a.m., and he wants to be on time, what time should he get up?

The problem gives you the amount of time it will take to complete 2 tasks (40 minutes and 10 minutes). It also tells you the time the last task must end (8:30 a.m.)

Task 1:   If Ben walked for 10 minutes, he would start walking at 8:20 a.m.
Task 2:   If he needed 40 minutes to get ready, he had to get up 40 minutes before 8:20 a.m., at 7:40 a.m.

Example 3:

A number is multiplied by 6, then divided by 2, then divided again this time by 3. The result is 8. What is the original number?

?	→	multiply by 6	→	divide by 2	→	divide by 3	→	result 8

Reverse the operations starting with the result: Start with 8, multiply by 3, then you get 24. Then you multiply 24 by 2 to get 48. Finally divide 48 by 6, which get you to 8, the starting number.