

7-1 Problem-Solving Strategy: Work Backward (Pages 330–332)

With some problems, you know the end result but you need to find out something that happened earlier. You can use the strategy of **working backward** to solve problems like this. To use this strategy, start with the end result and *undo* each step.

EXAMPLE

Joni downloaded four songs on MP3 files from the Internet. The file sizes were 3.2 MB, 4.6 MB, 2.7 MB, and 8.1 MB (MB = megabyte). After the downloads, the disk where she stored the files held 26.3 MB of data. How much data was on the disk before the downloads?

Explore	You know the sizes of the files Joni downloaded, and the total amount of data stored on her disk. You want to find how much data was on the disk before the downloads.
Plan	Since the problem gives you the end result and asks for something that happened earlier, start with the end result and work backward. <i>Undo</i> each step.
Solve	$26.3 - 3.2 - 4.6 - 2.7 - 8.1 = 7.7$ The disk had 7.7 MB of data before the downloads.
Examine	Before the downloads, she had 7.7 MB of data on her disk. She then added files of 3.2 MB, 4.6 MB, 2.7 MB, and 8.1 MB. The total amount of data on the disk after the downloads was 26.3 MB, so the answer seems correct.

PRACTICE

Solve. Use any strategy.

- Lu We took a fifth of her savings, or \$100, out of the bank for a skateboard. How much was originally in her account?
- The Johnson s ate a fourth of their eggs on the first breakfast of their camping trip. They cooked 6 eggs. How many eggs did they bring?
- A certain number is multiplied by 4 and 3 is added to the result. The final answer is 19. Find the number.
- A group of 28 students went to the science museum to see the fossils exhibit. The museum collected \$42 from the students. How much was the admission for each student?
- Crafts** Shania s beading project requires 2000 blue beads, 750 red, 1500 white, and 1200 yellow beads. After completing the project she had 1000 beads left. How many beads did Shania have at the beginning of the project?



- Standardized Test Practice** Sten has \$2.25. Half of the money he had when he left home this morning was spent on lunch. He lent Chrisana \$1.50 after lunch. How much money did Sten start with?

A \$7.50 **B** \$7.00 **C** \$3.50 **D** \$3.25

Answers: 1. \$500 2. 24 eggs 3. 4 4. \$1.50 5. 6450 beads 6. A