

The final grid looks like this.

	1	2	3	4
GUITAR	\$1500 ↓ G	\$1500 ↓ G	\$1500 ↓ G	\$1500 G
STEREO	\$1500 ↓ G	\$1500 ↓ G	\$1500 G	\$3000 S
LAPTOP	\$1500 G	\$1500 G	\$2000 L	\$3500 L G

↑
THE ANSWER!

There's the answer: the maximum value that will fit in the knapsack is \$3,500, made up of a guitar and a laptop!

Maybe you think that I used a different formula to calculate the value of that last cell. That's because I skipped some unnecessary complexity when filling in the values of the earlier cells. Each cell's value gets calculated with the same formula. Here it is.

$$\begin{array}{c} \text{ROW} \quad \text{COLUMN} \\ \downarrow \quad \downarrow \\ \text{CELL}[i][j] \end{array} = \text{MAX OF} \left\{ \begin{array}{l} 1. \text{ THE PREVIOUS MAX (VALUE AT CELL } [i-1][j]) \\ \text{VS} \\ 2. \text{ VALUE OF CURRENT ITEM + VALUE OF THE REMAINING SPACE} \\ \quad \quad \quad \uparrow \\ \quad \quad \quad \text{CELL}[i-1][j - \text{ITEM'S WEIGHT}] \end{array} \right.$$

You can use this formula with every cell in this grid, and you should end up with the same grid I did. Remember how I talked about solving subproblems? You combined the solutions to two subproblems to solve the bigger problem.

