

Sizing Question 1: How many personal computers are used in the U.S. today?

Start by clarifying the question to precisely define the problem.

Example questions would include:

1. By computers, do you strictly mean retail computers (eg, laptops, PCs) or are computing devices also included (eg, smart phones, computing devices like the Amazon Kindle)?
2. Would you only include those that are used on a regular basis, or also the discarded/decommissioned computers stored in warehouses or recycling yards that are still functioning?

Let's assume that the interviewer is just asking about retail computers in households.

Example approach #1: "Top-down"

Step 1. Start by estimating the size of the PC industry in annual sales

\$25 billion

Step 2. Calculate an annual number of computers sold from the annual sales number

Assume an average of \$1000/computer.

\$25 billion divided by \$1000/computer = 25 million computers sold annually

Does this pass the smell test? 25 million computers sold in the US annually sounds a little high, but does not seem off by an order of magnitude (your standard for smell tests)

We now know that 25 million computers are sold annually. If we multiply that by the number of years that computers have existed, we'll have the total number of computers ever produced. But that won't tell us how many computers there are in the U.S. at that particular moment. We need to determine a computer's average lifespan.

Step 3. Use common sense to determine a computer's average lifespan

Assume 4 years.

Now that we know how far back to go to determine the number of computers outstanding, we can easily calculate the total number of computers in the U.S.