

DIMENSIONAL ANALYSIS STEPS

Dimensional analysis is an easy problem solving technique that uses simple fraction multiplication to solve complex conversion problems.

Follow these steps to set up a dimensional analysis problem:

1. Determine **what** unit **is given and** what unit you are **seeking** in the answer. This is often the most challenging step in this technique.
2. Write the **unit** you are **seeking** at the left margin of your paper with a “?”, and **set it equal** to the unit(s) and the corresponding values of what was **given**. The given unit will be in the **numerator**—when in doubt put the original unit on top.
3. To cancel out the original unit, place that same unit in the next fraction’s **denominator**, where it will be **ready to cancel** later.
4. Search for a unit definition that will get you **closer** to the unit you want in the final answer. This becomes the unit in the new fraction’s numerator. The resulting fraction or “unit definition” **must be** equivalent to **one** (1).
5. Continue this procedure until the unit has changed into the actual unit you are seeking in your answer. When you arrive at the final unit, **circle it**.
6. **Verify the definitions** by reading the numerator and the denominator of each unit definition making sure they are equal. It is very easy to write 12 feet equals 1 inch, but when you read it, you will promptly catch your error.
7. **Cancel the unit names** after the unit definitions have all been verified. Only the units you are seeking (those circled) should remain.
8. The last step is to **cancel any common factors in the numbers**; then multiply and divide the remaining numbers, completing the math.
9. The answer is a new number with its corresponding units.