Dimensional Analysis

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The purpose of dimensional analysis is to convert between units of measurement. They are often called train tracks, or railroad tracks and are used frequently so it is important to be proficient in them. The easiest way to solve is to think of them as a set of proportions.

They work like this:

Say for example that you are trying to convert 5 days into seconds.

The first block is used to put the original value of the unit being converted. For dimensional analysis the most important thing to focus on is units which is why many people will put the units and then fill in the numbers afterwards.

days	hours	minutes	seconds
	day	hour	Minute

The second block in used like a proportion to the next smallest unit. The units flow diagonally and follows the pattern until the desired unit is achieved (which in this case is seconds).

We are trying to convert 5 days so 5 goes in the first block. The block below is left blank.

5 days	hours	minutes	seconds
	day	hour	Minute

The next column converts days into hours. There are 24 hours in 1 day.

5 days	24 hours	minutes	seconds
	1 day	hour	Minute

The next column converts hours into minutes, 60 minutes per 1 hour.

5 days	24 hours	60 minutes	seconds
	1 day	1 hour	Minute

The last column converts minutes into seconds, 60 seconds per 1 minute.

5 days	24 hours	60 minutes	60 seconds
	1 day	1 hour	1 Minute

When the table is complete, the top row is multiplied together. (5*24*60*60) which is then divided by the product of the bottom row (1*1*1). The result is 432,000 seconds.