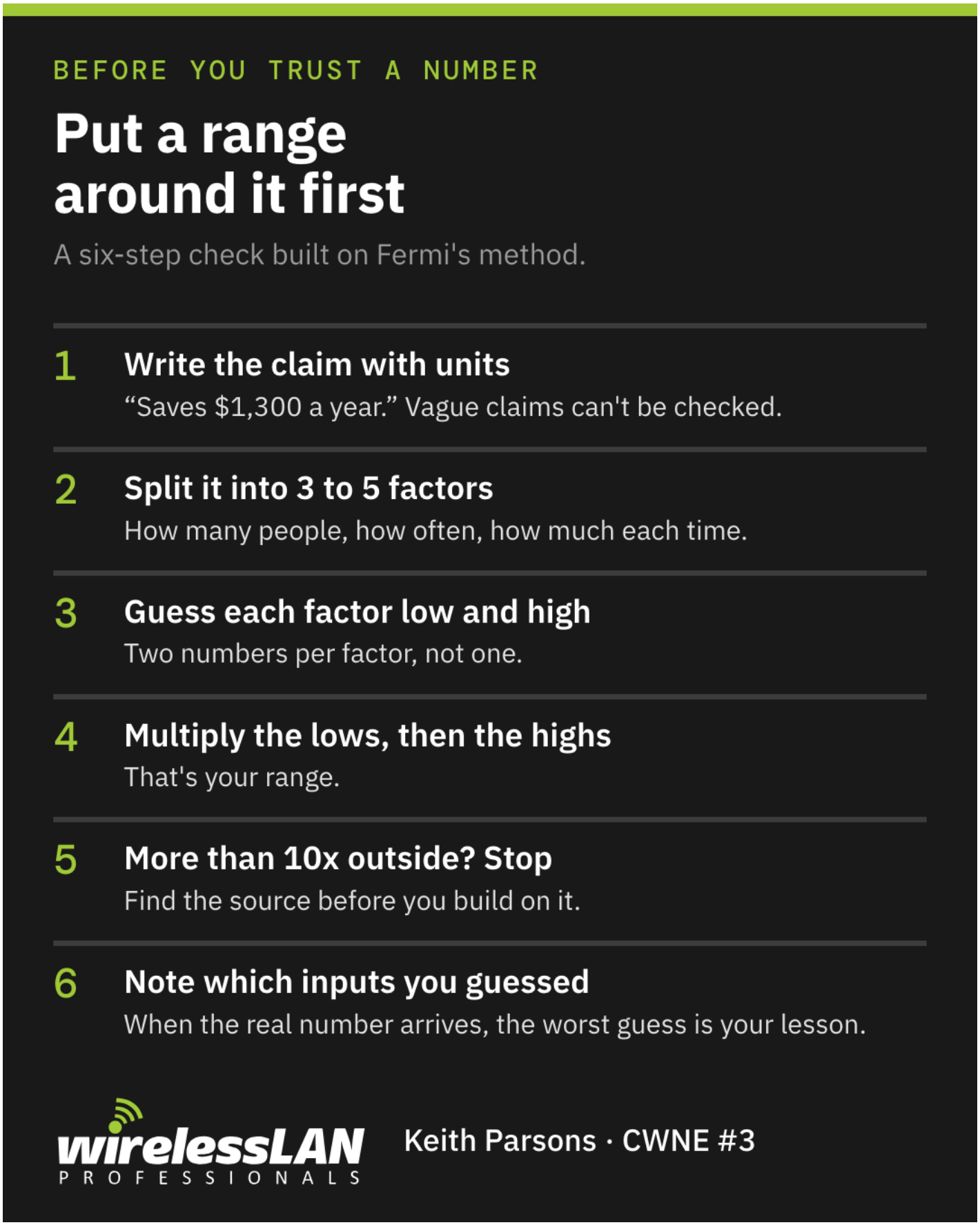
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Before You Trust a Number, Put a Range Around It

By **Keith Parsons, CWNE #3** · 2026-10-13



Many years ago, before I was even born, there was a professor, Enrico Fermi (he was also a little bit involved with the Manhattan Project), teaching at the University of Chicago. He

would ask his students to do some estimations.

The one he would ask, and it became kind of famous, was: how many piano tuners work in Chicago? They couldn't go look in the phone book or any other directory. He just had them try to figure it out.

What he was trying to get his students to do was break a big problem into smaller chunks that are easier to guess.

First, you need to find out how many pianos are in Chicago. How many households are in Chicago? What's the percentage of households that have pianos? Next, how often does a piano need to be tuned per year? So if you know the houses, you know the pianos, and then you can calculate how many tunings are needed in Chicago this year.

You can also look at how many pianos one tuner can tune per day, and then calculate how many in a year. Divide the number of tunings Chicago needs by the number one tuner can do in a year, and that will tell you the number of tuners.

No one expects to find the exact answer, but it's amazing how close you can get when you just break the guesses down into individual components.

So before you build any kind of number you might want to stand behind, try running this. Write the claim as a number, with whatever units you're using. Split it into two, three, four, five different factors that one number can be broken into. Then give each of those sub-factors a high guess and a low guess. Give it a range. Multiply all the lows together, multiply all the highs together, and that gets you an overall range.

If you were more than an order of magnitude off, you probably need to go back and look at it again. If you're within one order of magnitude, that's probably a pretty close guess and you can go with it. If your process works, you should be inside that order of magnitude, a factor of 10. That's enough to figure out whether or not the claim was valid.

You can use this on your own guesses. You can use it on other people's numbers.

Is there any number you've seen lately where you just looked and said, yeah, right? Use the Fermi technique to find out: is it even close?

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