Magic Formula for Placement of Increases or Decreases

From the feedback I got on the workshop I taught at Camp Yawatink, sponsored by Ana Cross Stitch in Anacortes, Washington, the best trick I showed the campers was the shaping formula from Cheryl Brunette's book *Sweater 101* (Patternworks, 1991) and more recently expanded in Shirley Paden's *Knitwear Design Workshop* (Interweave, 2010). This formula tells you how to space increases or decreases evenly across a row (or between a certain number of rows) of knitting. Here's an overview of how it works (check out the books mentioned above for details):

Suppose you have 124 stitches on your needles and the pattern says to increase 14 stitches evenly. To determine how to space those 14 increases evenly, divide 124 by 14. This tells you the number of full times 14 goes into 124, which in this case is 8 with a remainder of 12.

To me, the rest is magical and would take a math genius to understand (I'm sure I'll never grasp the logic). Next, subtract the remainder from the number of stitches you want to increase, which in this case is
$14 - 12 = 2$.
Also add 1 to the whole number at the top of the division equation, which in this case is
$8 + 1 + 9$.

Finally, draw diagonal lines between the two numbers on the top line of the equation and the numbers on the bottom line of the equation. These diagonal lines tell you to increase every 8th stitch 2 times and every 9th stitch 12 times—14 increases worked over 124 stitches.

Don't believe me? Check the math:
8 x 2 = 16
9 x 12 = 108

16 stitches + 108 stitches = 124 stitches
2 increases + 12 increases = 14 stitches increased.

$$8 \times 2 = 16$$
$$9 \times 12 = 108$$
$$14 \qquad 124$$

For truly even spacings, alternate the two increase intervals. In this case, increase every 9th stitch 3 times, then increase on the 8th stitch once, then increase every 9th stitch 6 times, then increase on the 8th stitch once, then increase every 9th stitch 3 more times—14 increases worked over 124 stitches.

If you don't want to work the last increase on the last stitch of the row (which I avoid at all costs), split one interval as evenly as possible between the beginning and end of the row. Just to make things more difficult, let's split the 9-stitch interval:

Increase in the 4th stitch, then increase every 9th stitch 2 times, then increase in the 8th stitch once, then increase every 9th stitch 6 times, then increase in the 8th stitch once, then increase every 9th stitch 3 more times, then work 5 stitches even to the end of the row—14 increases worked over 124 stitches.

Decreases are worked the same way, but remember that a decrease is typically worked over 2 stitches (k2tog), so you would work the decreases on 7th + 8th stitches 2 times and on the 8th and 9th stitches 12 times.