

How to adapt a pattern written for one gauge to another gauge

By Ann Budd, from a talk on the mathematics of knitting for the Front Range Knitting Guild
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I was asked how to adapt a pattern written for one gauge to another gauge. For example, let's say that a pattern calls for worsted-weight yarn at a gauge of 5 stitches to the inch and you want to adapt it for sportweight yarn at a gauge of 6.5 stitches to the inch. Let's say that the pattern calls for casting on 98 stitches. How many stitches would you cast on to produce a piece the same width at your tighter gauge of 6.5 stitches to the inch?

1. The answer lies in a simple relationship of ratios:

$$\frac{\text{Number of sts in patt}}{\text{Patt gauge}} = \frac{\text{Number of sts at your gauge}}{\text{Your gauge}}$$

2. If we plug in the numbers, we have:

$$\frac{98}{5} = \frac{\text{Number of sts at your gauge}}{6.5}$$

3. To solve for the unknown (Number of sts at your gauge), simply multiply both sides by your gauge (6.5):

$$\frac{98 \times 6.5}{5} = \text{Number of sts at your gauge}$$

4. Flip the two sides and solve for the unknown number of stitches:

$$\text{Number of sts at your gauge} = \frac{98 \times 6.5}{5} = \frac{637.5}{5} = 127.4$$

Because you can't cast on partial stitches, you'd need to round up to 128 stitches (if you wanted to work with an even number of stitches) or round down to 127 stitches (if you wanted to work with an odd number of stitches).

For a short cut, simply plug in the following equation every time the pattern lists a number of stitches to determine the number of stitches to work at your gauge:

$$\text{Number of sts at your gauge} = \frac{(\text{Number of sts in patt}) \times (\text{Your gauge})}{\text{Patt gauge}}$$

For example, if the pattern said to bind off 30 stitches at the center neck, you'd bind off 39 stitches instead.

$$\text{Number of sts at your gauge} = \frac{30 \times 6.5}{5} = 39$$

If you chose to work with an even number of stitches initially (128 stitches), you'd want to adjust this number to be an even number as well so that there would be the same number of stitches on each side of the neck. Keep in mind that it's your choice whether to adjust up to 40 stitches or down to 38 stitches – the difference of a stitch won't make a visible difference.