



Sweater Math



Yarn Enchantment

Sweater Math Worksheet: Adjust Your Sweater to Your Gauge

Use this worksheet to translate any sweater pattern into your own gauge. Keep it next to your swatch, your tape measure, and your favorite pen.

Prefer to let a calculator do the math? Use the Sweater Math Calculator on my blog, then transfer your results here.

I've included a full example from page 7 to 11 that shows you exactly how I use this worksheet with my own measurements. You can follow along with my numbers once, then repeat the same steps with your gauge and body.

Part 1 – Gauge information

This is your little translation key between the pattern's world and your swatch's world.

Pattern gauge

Stitches in 10 cm (about 4 in): _____ sts

Rows in 10 cm (about 4 in): _____ rows

Stitches per cm: _____ \div 10 = _____ sts/cm

Rows per cm: _____ \div 10 = _____ rows/cm

Stitches per inch (optional): _____ \div 3.94 \approx _____ sts/in

Rows per inch (optional): _____ \div 3.94 \approx _____ rows/in

Your gauge (after washing/blocking)

Stitches in 10 cm (about 4 in): _____ sts

Rows in 10 cm (about 4 in): _____ rows

Stitches per cm: _____ \div 10 = _____ sts/cm

Rows per cm: _____ \div 10 = _____ rows/cm

Stitches per inch (optional): _____ \div 3.94 \approx _____ sts/in

Rows per inch (optional): _____ \div 3.94 \approx _____ rows/in

Example from this post:

Pattern: 16 sts / 10 cm \rightarrow 1.6 sts/cm (about 4 sts/in).

You: 21 sts / 10 cm \rightarrow 2.1 sts/cm (about 5.3 sts/in).

Part 2 – Your measurements and ease

Here you decide how big you actually want the sweater to be on your body.

Bust / chest

Your body bust: ____ cm / ____ in

Ease you want: + ____ cm / ____ in

Finished bust (body + ease): = ____ cm / ____ in

Neck opening (optional)

Neck circumference you'd like: ____ cm / ____ in

(Most people choose 0–2 cm / 0–1 in ease here.)

Yoke depth (shoulder to underarm)

Pattern yoke depth: ____ cm / ____ in

Your target yoke depth: ____ cm / ____ in

Example:

Body bust: 100 cm (about 39.5 in), Ease: +8 cm (about 3 in) → Finished bust: 108 cm (about 42.5 in).

Part 3 – Your total body stitches

Now you turn your “finished bust” into a stitch count. This will become your magic number.

Formula (metric):

Finished bust (cm) × your sts/cm = total body stitches you need.

Finished bust: ____ cm

× Your sts per cm (from Part 1): × ____

= Total body stitches: ____ sts

(If you prefer inches, you can also do: finished bust in inches × your sts per inch.)

Example from this post:

102 cm × 2.1 sts/cm ≈ 214 sts.

Part 4 – Compare with the pattern size

Pick the pattern size that looks closest to your target bust and see what it really becomes at your gauge.

- Pattern size label (e.g. M, 3, 2XL): _____
- Pattern finished bust: _____ cm (optional: _____ in)
- Pattern TOTAL sts after raglan: _____ sts

At your gauge

- Pattern TOTAL ÷ your sts/cm = _____ ÷ _____ ≈ _____ cm (optional: _____ in)

If this “real” bust is not what you want, you won’t knit this size as written; you’ll use your total from Part 3 instead.

Example:

Pattern M: 108 cm (about 42.5 in), 174 sts TOTAL.

Your gauge: 2.1 sts/cm → $174 \div 2.1 \approx 82.9$ cm (about 32.6 in) – too small.

Conclusion: If this “real” bust at your gauge is not what you want, you’ll adjust the numbers using your total from Part 3 instead of trusting the size label.

Part 5 – How the pattern splits its stitches

Here you copy how one size in the pattern divides its stitches between front, back, sleeves, and raglan lines. This size is your blueprint.

5a) Copy the stitch counts from your pattern (one size)

Write the stitch counts *after* all raglan increases, just before sleeve separation.

Section	Pattern section sts	% of total (section ÷ TOTAL × 100)
Front	_____	_____ %
Back	_____	_____ %

Left sleeve	_____	_____ %
Right sleeve	_____	_____ %
Raglan sts*	_____	_____ %
TOTAL		100%

*Raglan sts = all the “seam” stitches around the shoulders added together.

5b) Your custom stitch counts

Use the percentages from 5a to scale to your magic total from Part 3.

- Your total body stitches (from Part 3): _____ sts

For each section:

Your section sts = (section % as a decimal) × your total body stitches.

Section	% of total	Your section sts (rounded)
Front	_____ %	_____ sts
Back	_____ %	_____ sts
Left sleeve	_____ %	_____ sts
Right sleeve	_____ %	_____ sts

Raglan sts	_____ %	_____ sts (all raglan sts)
TOTAL	100%	≈ _____ sts (close to Part 3)

Example

Pattern: 65 front sts out of 276 total → $65 \div 276 \approx 23.5\%$.

Your total: 227 sts → $0.235 \times 227 \approx 53$ sts for your front.

Part 6 – Row gauge and lengths

Row gauge tells you how many rows you need to reach a certain length. You can skip the numbers and just knit to cm/inches if you prefer.

Your row gauge

- Rows in 10 cm: _____ rows
- Rows per cm: _____ \div 10 = _____ rows/cm

Now turn pattern lengths into “your rows” (optional):

Part	Pattern length (cm / in)	Your rows (length \times rows/cm)
Yoke depth	_____ cm / _____ in	_____ \times _____ \approx _____ rows
Body	_____ cm / _____ in	_____ \times _____ \approx _____ rows
Sleeve	_____ cm / _____ in	_____ \times _____ \approx _____ rows

Rule of thumb: knit to the length you want and try on as you go.

Sweater Math Worksheet – Worked Example

Top-down raglan adjusted to my gauge

This is the worksheet filled in with the numbers from the blog post tutorial. Use it to see how each step works, then fill in the blank worksheet with your own gauge and measurements.

Part 1 – Gauge: pattern vs. your swatch

Pattern gauge

- Stitches in 10 cm (about 4 in): 16 sts
- Rows in 10 cm (about 4 in): 25 rows
- Stitches per cm: $16 \div 10 = 1.6$ sts/cm
- Rows per cm: $25 \div 10 = 2.5$ rows/cm

Your gauge (washed and blocked)

- Stitches in 10 cm (about 4 in): 21 sts
- Rows in 10 cm (about 4 in): 29 rows
- Stitches per cm: $21 \div 10 = 2.1$ sts/cm
- Rows per cm: $29 \div 10 = 2.9$ rows/cm

What this means

My stitches are smaller (2.1 vs. 1.6 sts/cm), so any given stitch count will knit up narrower on my needles than the pattern expects.

Part 2 – Your body and ease

Bust / chest

- Your bust: 96 cm (about 38 in)
- Ease you want: + 6 cm (about 2.5 in)
- Target finished bust: = 102 cm (about 40 in)

Neck opening (optional)

- Neck circumference you'd like: 54 cm (about 21 in)

Yoke depth (shoulder to underarm)

- Pattern yoke depth: 20 cm (about 8 in)
- Your target yoke depth: 20 cm (about 8 in)

Note

The pattern suggests 5–15 cm ease. I chose 6 cm for a relaxed but not oversized fit.

Part 3 – Your total body stitches ("magic number")

Formula

Finished bust (cm) × your sts/cm = total body stitches.

- Finished bust: 102 cm
- × Your sts/cm (from Part 1): × 2.1
- = Total body stitches you need: 214.2 sts → rounded to 214 sts

This is my magic number: 214 stitches around the body after sleeve separation.

Part 4 – What one pattern size becomes at your gauge

I looked at several sizes and chose 2XL as my blueprint because its stitch count matches my magic number.

- Pattern size label: 2XL (size 6 in the pattern)
- Pattern finished bust: 133 cm (about 52.4 inches.)
- Pattern TOTAL sts after raglan: 214 sts

At your gauge

- Pattern TOTAL ÷ your sts/cm = $214 \div 2.1 \approx 102$ cm (about 40 in)

Perfect! At my gauge, the 2XL stitch count gives me exactly 102 cm – my target finished bust. Even though the pattern calls this size "133 cm," at my gauge it becomes 102 cm, which is what I want.

Part 5 – How the pattern splits its stitches

5a) Copy the stitch counts from your pattern (2XL size)

These are the stitch counts the pattern gives for size 2XL after all raglan increases:

Section	Pattern section sts	% of total (section ÷ TOTAL × 100)
Front	65	$65 \div 214 \times 100 = 30.4\%$
Back	71	$71 \div 214 \times 100 = 33.2\%$
Left sleeve	33	$33 \div 214 \times 100 = 15.4\%$
Right sleeve	33	$33 \div 214 \times 100 = 15.4\%$
Raglan sts	12	$12 \div 214 \times 100 = 5.6\%$
TOTAL	214	100%

5b) Your custom stitch counts

Since I'm knitting the exact size (2XL) that matches my magic number, my custom counts are the same as the pattern:

- Your total body stitches (from Part 3): 214 sts

Section	% of total	Your section sts (rounded)
Front	30.4%	65 sts

Back	33.2%	71 sts
Left sleeve	15.4%	33 sts
Right sleeve	15.4%	33 sts
Raglan sts	5.6%	12 sts
TOTAL	100%	214 sts ✓

If your magic number doesn't match a written size, use these percentages to scale.

For example, if you need 227 total stitches:

Front = $0.304 \times 227 \approx 69$ sts, Back = $0.332 \times 227 \approx 75$ sts, etc.

Part 6 – Row gauge and lengths

Your row gauge

- Rows in 10 cm: 29 rows
- Rows per cm: $29 \div 10 = 2.9$ rows/cm

Here's how the pattern's lengths translate to my row gauge:

Part	Pattern length (cm / in)	Your rows (length × rows/cm)
Yoke depth	20 cm / 8 in	$20 \times 2.9 \approx 58$ rows
Body	40 cm / 15.5 in	$40 \times 2.9 \approx 116$ rows

Sleeve	45 cm / 17.5 in	$45 \times 2.9 \approx 131$ rows
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Important: Because my row gauge is tighter (2.9 vs. 2.5 rows/cm), I reach my target stitch count *before* the pattern's row count. I stopped increasing when my stitch counts were right, then continued straight to the yoke depth I wanted by measuring with my tape measure.

Part 7 – Quick action plan

This is what I kept in my project bag:


- Cast on:
- Distribute: Front | Back | Sleeve | Sleeve | Raglan total 4 (1 st at each of 4 raglan lines).
- Work raglan increases (increasing before and after each raglan marker every other round) until TOTAL around yoke \approx 214 sts.
- Yoke depth should measure about 20 cm (about 8 in) on my body.

At separation

- Put about 33 sts on hold for each sleeve.
- Keep about 136 sts for body (65 front + 71 back).

After separation

- Work body to 40 cm (about 15.5 in).
- Work sleeves to 45 cm (about 17.5 in) before cuffs.

The result: A size 2XL that fits my 96-cm bust perfectly, because I chose the size by stitch count and gauge math, not by the letter on the label. 

A decorative border of watercolor-style flowers, including large pink and orange roses, smaller pink blossoms, and green leaves, some with white polka dots, framing the central text.

*Your gauge, your sweater,
your magic.*

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