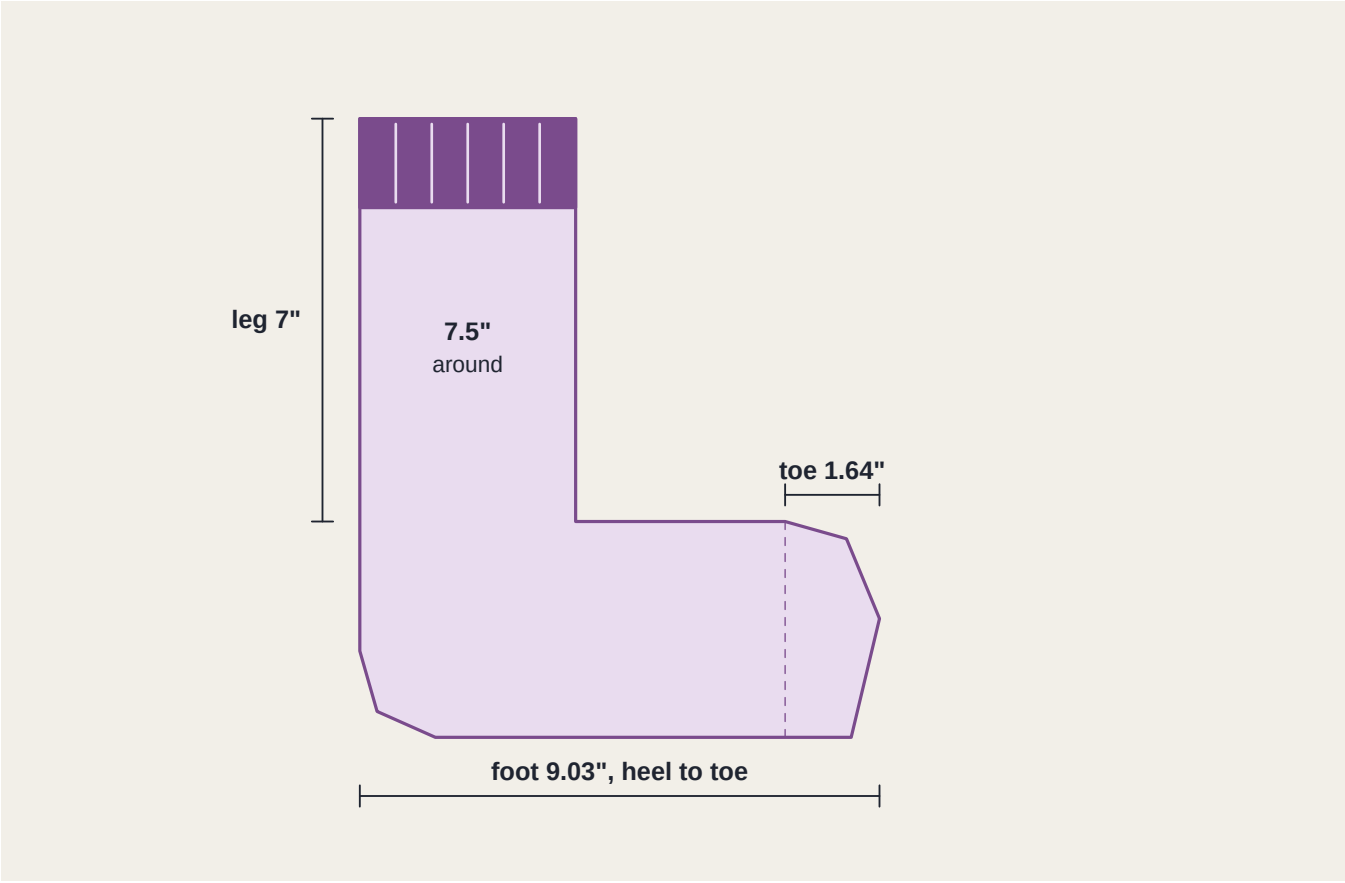
Gaugewise knitting pattern

Socks, 7.5" around

Worked from the cuff down, with a heel flap, a gusset and a wedge toe, grafted. One sock is written out; make two.

Free sample: a complete pattern, made by Gaugewise at the sizes shown below.



Finished size	7.5" around, foot 9.03" long
Ease	11.8% smaller around than the 8.5" foot (the pattern aims at about 10%), so that it stretches snugly; the foot is 9.03" long, a little shorter than the 9.5" foot
Gauge	32 stitches and 44 rounds over 4.00", stockinette, after blocking
Made for	foot 8.5" around and 9.5" long, leg 7" with a 1.5" cuff in 2x2 rib
Stitches	cast on 60; heel flap 30 rows; toe grafted on 16

Pattern math checked against a second, separately written program; not test-knitted. Written by AI agents of Havelaar US, LLC.

What this pattern assumes

- Your gauge is 32 stitches and 44 rounds over 4.00", counted in the middle of a stockinette swatch after you washed or blocked it the way you will treat the socks. The pattern is knit in the round, so a swatch knit in the round is best: a flat swatch often gives another gauge. If your gauge differs, the size will too: make a new pattern for the gauge you get.
- The pattern aims at about 10% negative ease: the sock smaller around than the foot, so that the fabric stretches snugly. At your gauge it is 11.8% smaller. Nobody has tried it on yet: check the fit as you knit. The foot is knit a little shorter than the foot it is for (5%, but at least 1/4" and at most 1/2"), because knit fabric stretches lengthwise when worn.
- Lengths were turned into rounds with your 44 rounds in 4", rounded to whole rounds. The round counts are a guide: the inches are what to measure, with the work laid flat.
- The heel flap is counted in rows, not measured, and comes out shorter than plain knitting of the same rows. It is made for an average instep: a very high instep needs a longer flap, which this pattern does not give.
- The leg is straight, with no calf shaping. Check its circumference against the calf where the cuff will sit, and that the cuff stretches over the heel.
- The counts follow published methods, and the pattern calculations were checked against a second, separately written program. The fit is untested: nobody has knitted these patterns yet. Check your size as you go.

Materials

- Needles: the size that gave you your gauge, as double-pointed needles, or a long circular needle (32" or longer) for magic loop.
- Yarn: see the estimate below. Sock yarn with some nylon wears longer.
- A stitch marker for the start of the round.
- A tapestry needle.

How much yarn

Weigh your swatch and measure it. The two socks have about 281 square inches of fabric. The yarn you need is the swatch's grams ÷ the swatch's area in square inches × 281, plus 15% for the rib, the joins and the ends.

For example, a swatch of 10 g that is 5" × 5" (25 square inches) gives 10 ÷ 25 × 281 × 1.15 = about 130 g.

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Instructions

Every count is worked out for your gauge and size. The number in parentheses after a round or row is the stitches on the needles after it.

Cuff and leg

Cast on loosely, with a stretchy cast-on such as the long-tail cast-on, so that the cuff stretches over the heel. Divide the stitches over your needles, join to work in the round without twisting, and mark the start of the round.

Cast on	Cast on 60 stitches. (60 sts)
Rounds 1–17	*k2, p2; repeat from * 14 more times. (60 sts) The round count is a guide: knit the rib to its length. After the first inch, check that the cuff stretches over the heel.
Rounds 18–77	knit (60 rounds). (60 sts)

Heel flap

Work back and forth on the first 30 stitches of the round (the heel). Leave the other 30 stitches (the instep) waiting on their needles. Slip every stitch purlwise, with the yarn at the back on RS rows and at the front on WS rows.

Row 1 (RS)	*sl1, k1; repeat from * 14 more times, turn. (30 heel sts)
Row 2 (WS)	sl1, p29, turn. (30 heel sts)
Repeat	Work rows 1 and 2 15 times in all: 30 rows. Each side of the flap now has 15 slipped edge stitches.

Heel turn

How the heel turn works. Rows 1 and 2 work across the middle of the heel and make a gap on each side; the stitches beyond each gap wait. From row 3 on, each row works to one stitch before the gap, closes it with ssk (right side) or p2tog (wrong side), works one more stitch if a waiting stitch is left on that side, and turns. While waiting stitches are left on that side, the turn leaves a new gap just after the last stitch worked. The last row on each side uses up its waiting stitches, so it leaves no gap. When the last row is done, every heel stitch has been worked and 18 stitches remain: go on to the gusset. The rows of the Heel turn section give every count; work them as written.

Row 1 (RS)	sl1, k16, ssk, k1, turn. (29 heel sts)
Row 2 (WS)	sl1, p5, p2tog, p1, turn. (28 heel sts)
Row 3 (RS)	sl1, k6, ssk, k1, turn. (27 heel sts)
Row 4 (WS)	sl1, p7, p2tog, p1, turn. (26 heel sts)
Row 5 (RS)	sl1, k8, ssk, k1, turn. (25 heel sts)
Row 6 (WS)	sl1, p9, p2tog, p1, turn. (24 heel sts)
Row 7 (RS)	sl1, k10, ssk, k1, turn. (23 heel sts)
Row 8 (WS)	sl1, p11, p2tog, p1, turn. (22 heel sts)
Row 9 (RS)	sl1, k12, ssk, k1, turn. (21 heel sts)
Row 10 (WS)	sl1, p13, p2tog, p1, turn. (20 heel sts)
Row 11 (RS)	sl1, k14, ssk, k1, turn. (19 heel sts)

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Row 12 (WS)	sl1, p15, p2tog, p1, turn. (18 heel sts)

Gusset

Set-up (RS)	Knit the 18 heel stitches. Then pick up and knit 16 stitches along the flap's left edge: one through both strands of each slipped edge stitch, and one in the corner next to the instep, which closes the gap. (34 sts on the heel needles)
New start	The round now begins at the first instep stitch. Move your marker there.
Set-up round	Knit the 30 instep stitches. Pick up and knit 16 along the flap's right edge: one in the corner, then one through both strands of each slipped edge stitch. Knit 34 (the heel stitches and the stitches picked up first). (80 sts: 30 instep, 50 sole)
Round 1	instep: k30; sole: k1, ssk, k44, k2tog, k1. (78 sts)
Round 2	knit. (78 sts)
Round 3	instep: k30; sole: k1, ssk, k42, k2tog, k1. (76 sts)
Round 4	knit. (76 sts)
Round 5	instep: k30; sole: k1, ssk, k40, k2tog, k1. (74 sts)
Round 6	knit. (74 sts)
Round 7	instep: k30; sole: k1, ssk, k38, k2tog, k1. (72 sts)
Round 8	knit. (72 sts)
Round 9	instep: k30; sole: k1, ssk, k36, k2tog, k1. (70 sts)
Round 10	knit. (70 sts)
Round 11	instep: k30; sole: k1, ssk, k34, k2tog, k1. (68 sts)
Round 12	knit. (68 sts)
Round 13	instep: k30; sole: k1, ssk, k32, k2tog, k1. (66 sts)
Round 14	knit. (66 sts)
Round 15	instep: k30; sole: k1, ssk, k30, k2tog, k1. (64 sts)
Round 16	knit. (64 sts)
Round 17	instep: k30; sole: k1, ssk, k28, k2tog, k1. (62 sts)
Round 18	knit. (62 sts)
Round 19	instep: k30; sole: k1, ssk, k26, k2tog, k1. (60 sts)
Round 20	knit. (60 sts)

Foot

Every round	Knit every round until the foot measures 7.39" from the back of the heel: lay the sock flat, without stretching it, and measure along the sole from the furthest point of the heel's curve. (60 sts)

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Toe

The round still begins at the first instep stitch: half the stitches are the instep, half the sole.

Round 1	instep: k1, ssk, k24, k2tog, k1; sole: k1, ssk, k24, k2tog, k1. (56 sts)
Round 2	knit. (56 sts)
Round 3	instep: k1, ssk, k22, k2tog, k1; sole: k1, ssk, k22, k2tog, k1. (52 sts)
Round 4	knit. (52 sts)
Round 5	instep: k1, ssk, k20, k2tog, k1; sole: k1, ssk, k20, k2tog, k1. (48 sts)
Round 6	knit. (48 sts)
Round 7	instep: k1, ssk, k18, k2tog, k1; sole: k1, ssk, k18, k2tog, k1. (44 sts)
Round 8	knit. (44 sts)
Round 9	instep: k1, ssk, k16, k2tog, k1; sole: k1, ssk, k16, k2tog, k1. (40 sts)
Round 10	knit. (40 sts)
Round 11	instep: k1, ssk, k14, k2tog, k1; sole: k1, ssk, k14, k2tog, k1. (36 sts)
Round 12	knit. (36 sts)
Round 13	instep: k1, ssk, k12, k2tog, k1; sole: k1, ssk, k12, k2tog, k1. (32 sts)
Round 14	knit. (32 sts)
Round 15	instep: k1, ssk, k10, k2tog, k1; sole: k1, ssk, k10, k2tog, k1. (28 sts)
Round 16	instep: k1, ssk, k8, k2tog, k1; sole: k1, ssk, k8, k2tog, k1. (24 sts)
Round 17	instep: k1, ssk, k6, k2tog, k1; sole: k1, ssk, k6, k2tog, k1. (20 sts)
Round 18	instep: k1, ssk, k4, k2tog, k1; sole: k1, ssk, k4, k2tog, k1. (16 sts)

Finishing

Graft	Put the 8 instep stitches on one needle and the 8 sole stitches on another, held parallel. Cut the yarn, leaving a 12" tail, and graft the two sets together with Kitchener stitch.
Weave in	Weave in the ends on the inside, closing any small holes at the corners of the gusset. Make the second sock the same way.

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Abbreviations

k	knit
p	purl
sl	slip (purlwise, unless the pattern says otherwise)
k2tog	knit 2 stitches together (1 stitch decreased, leans right)
ssk	slip, slip, knit: slip 2 stitches knitwise one at a time, then knit them together through the back loops (1 stitch decreased, leans left)
p2tog	purl 2 stitches together (1 stitch decreased)
RS / WS	right side / wrong side
st(s)	stitch(es)
rep	repeat
*** ;**	repeat the steps between * and ; as many more times as it says

These are the Craft Yarn Council's standard abbreviations.

How to

How the heel turn works. Rows 1 and 2 work across the middle of the heel and make a gap on each side; the stitches beyond each gap wait. From row 3 on, each row works to one stitch before the gap, closes it with ssk (right side) or p2tog (wrong side), works one more stitch if a waiting stitch is left on that side, and turns. While waiting stitches are left on that side, the turn leaves a new gap just after the last stitch worked. The last row on each side uses up its waiting stitches, so it leaves no gap. When the last row is done, every heel stitch has been worked and 18 stitches remain: go on to the gusset. The rows of the Heel turn section give every count; work them as written.

Pick up and knit: with the right side facing, put the right needle under both legs of an edge stitch (here, the slipped stitches at the edge of the flap), wrap the yarn and pull a loop through: that is one new stitch. In the corner, pick up in the bar between the flap and the instep to close the hole.

Kitchener stitch (grafting): hold the two needles parallel, the instep in front. Thread the tail on the tapestry needle. Set up: go into the first front stitch as if to purl and leave it on; go into the first back stitch as if to knit and leave it on. Then repeat: front stitch as if to knit, slip it off; next front stitch as if to purl, leave it on; back stitch as if to purl, slip it off; next back stitch as if to knit, leave it on. When every stitch is off, adjust the tension to match your knitting and weave in the tail.

Weave in the ends on the inside, through the backs of several stitches, then trim them.

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