Stair rise and run chart

Risers, riser height, treads and total run by total rise, worked to a 7-3/4" maximum riser and 10" tread, and to a 7" riser and 11" tread.

Stairs by total rise: 7-3/4" maximum riser, 10" treads

Total rise	Risers	Riser height	Treads	Total run	Stringer	Angle
2' 0"	4	6"	3	2' 6"	≈ 3' 10-5/8"	31°
2' 6"	4	7-1/2"	3	2' 6"	4' 2"	36.9°
3' 0"	5	≈ 7-3/16"	4	3' 4"	≈ 5' 1-5/8"	35.8°
3' 6"	6	7"	5	4' 2"	≈ 6' 1-1/4"	35°
4' 0"	7	≈ 6-7/8"	6	5' 0"	≈ 7' 0-7/8"	34.4°
4' 6"	7	≈ 7-11/16"	6	5' 0"	≈ 7' 4-7/16"	37.6°
5' 0"	8	7-1/2"	7	5' 10"	8' 4"	36.9°
5' 6"	9	≈ 7-5/16"	8	6' 8"	≈ 9' 3-5/8"	36.3°
6' 0"	10	≈ 7-3/16"	9	7' 6"	≈ 10' 3-1/4"	35.8°
6' 6"	11	≈ 7-1/16"	10	8' 4"	≈ 11' 2-7/8"	35.3°
7' 0"	11	≈ 7-5/8"	10	8' 4"	≈ 11' 6-3/8"	37.4°
7' 6"	12	7-1/2"	11	9' 2"	12' 6"	36.9°
8' 0"	13	≈ 7-3/8"	12	10' 0"	≈ 13' 5-5/8"	36.4°
8' 6"	14	≈ 7-5/16"	13	10' 10"	≈ 14' 5-3/16"	36.1°
9' 0"	14	≈ 7-11/16"	13	10' 10"	≈ 14' 8-13/16"	37.6°
9' 6"	15	≈ 7-5/8"	14	11' 8"	≈ 15' 8-3/8"	37.2°
10' 0"	16	7-1/2"	15	12' 6"	16' 8"	36.9°

Risers = total rise ÷ 7-3/4", rounded up; riser height = total rise ÷ risers; treads = risers − 1; total run = treads × 10". Stringer = the pitch line, √(riser² + tread²) × risers; angle = arctan(riser ÷ tread). Lengths to the nearest 1/16" (≈ when rounded).

The same rises at a 7" maximum riser and 11" treads (the 7-11 rule)

Total rise	Risers	Riser height	Treads	Total run	Stringer	Angle
2' 0"	4	6"	3	2' 9"	≈ 4' 2-1/8"	28.6°
3' 0"	6	6"	5	4' 7"	≈ 6' 3-3/16"	28.6°
4' 0"	7	≈ 6-7/8"	6	5' 6"	≈ 7' 6-3/4"	31.9°
5' 0"	9	≈ 6-11/16"	8	7' 4"	≈ 9' 7-3/4"	31.2°
6' 0"	11	≈ 6-9/16"	10	9' 2"	≈ 11' 8-13/16"	30.8°
7' 0"	12	7"	11	10' 1"	≈ 13' 0-7/16"	32.5°
8' 0"	14	≈ 6-7/8"	13	11' 11"	≈ 15' 1-1/2"	31.9°
9' 0"	16	6-3/4"	15	13' 9"	≈ 17' 2-1/2"	31.5°
10' 0"	18	≈ 6-11/16"	17	15' 7"	≈ 19' 3-1/2"	31.2°

Same formulas, with 7" and 11" in place of 7-3/4" and 10".

Every number is worked out by the formulas of Construction Calculator 1.1.1 (iPhone and iPad, by KLM Labs). A printed chart is a guide: measure on site, and check your local building code for stairs. Free to print and share.