Roof pitch chart, 1/12 to 24/12

Angle, slope, cuts and rafter length per foot of run for each pitch, and common rafter lengths by building span.

Roof pitch to degrees, slope and rafter length, 1/12 to 24/12

Pitch	Angle (plumb cut)	Seat cut	Slope	Rafter per foot of run	Multiplier
1/12	4.8°	85.2°	8.3%	≈ 12-1/16"	1.0035
2/12	9.5°	80.5°	16.7%	≈ 12-3/16"	1.0138
3/12	14°	76°	25%	≈ 12-3/8"	1.0308
4/12	18.4°	71.6°	33.3%	≈ 12-5/8"	1.0541
5/12	22.6°	67.4°	41.7%	13"	1.0833
6/12	26.6°	63.4°	50%	≈ 13-7/16"	1.118
7/12	30.3°	59.7°	58.3%	≈ 13-7/8"	1.1577
8/12	33.7°	56.3°	66.7%	≈ 14-7/16"	1.2019
9/12	36.9°	53.1°	75%	15"	1.25
10/12	39.8°	50.2°	83.3%	≈ 15-5/8"	1.3017
11/12	42.5°	47.5°	91.7%	≈ 16-1/4"	1.3566
12/12	45°	45°	100%	≈ 17"	1.4142
13/12	47.3°	42.7°	108.3%	≈ 17-11/16"	1.4743
14/12	49.4°	40.6°	116.7%	≈ 18-7/16"	1.5366
15/12	51.3°	38.7°	125%	≈ 19-3/16"	1.6008
16/12	53.1°	36.9°	133.3%	20"	1.6667
17/12	54.8°	35.2°	141.7%	≈ 20-13/16"	1.7341
18/12	56.3°	33.7°	150%	≈ 21-5/8"	1.8028
19/12	57.7°	32.3°	158.3%	≈ 22-1/2"	1.8727
20/12	59°	31°	166.7%	≈ 23-5/16"	1.9437
21/12	60.3°	29.7°	175%	≈ 24-3/16"	2.0156
22/12	61.4°	28.6°	183.3%	≈ 25-1/16"	2.0883
23/12	62.4°	27.6°	191.7%	≈ 25-15/16"	2.1619
24/12	63.4°	26.6°	200%	≈ 26-13/16"	2.2361

Angle = arctan(pitch ÷ 12), the roof's angle and the rafter's plumb cut; seat cut = 90° − the plumb cut. Slope = pitch ÷ 12 as a percent. Rafter per foot of run = √(12² + pitch²) inches, to the nearest 1/16" (≈ when rounded); the multiplier is the same length in feet, to 4 places. Rafter lengths are line lengths with no overhang.

Common rafter length by building span and pitch (line length, no overhang)

Building span	4/12	6/12	8/12	10/12	12/12
12 ft	≈ 6' 3-7/8"	≈ 6' 8-1/2"	≈ 7' 2-9/16"	≈ 7' 9-3/4"	≈ 8' 5-13/16"
16 ft	≈ 8' 5-3/16"	≈ 8' 11-5/16"	≈ 9' 7-3/8"	≈ 10' 4-15/16"	≈ 11' 3-3/4"
20 ft	≈ 10' 6-1/2"	≈ 11' 2-3/16"	≈ 12' 0-1/4"	≈ 13' 0-3/16"	≈ 14' 1-11/16"
24 ft	≈ 12' 7-13/16"	≈ 13' 5"	≈ 14' 5-1/16"	≈ 15' 7-7/16"	≈ 16' 11-5/8"
28 ft	≈ 14' 9-1/16"	≈ 15' 7-13/16"	≈ 16' 9-15/16"	≈ 18' 2-11/16"	≈ 19' 9-9/16"
32 ft	≈ 16' 10-3/8"	≈ 17' 10-11/16"	≈ 19' 2-3/4"	≈ 20' 9-15/16"	≈ 22' 7-1/2"

The run is half the span. Length = run × √(144 + pitch²) ÷ 12, from the outside of one wall's top plate to the ridge line, before any ridge-board deduction or overhang, to the nearest 1/16".

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 roofs. Free to print and share.