Length Conversion Chart

Metric, imperial and nautical lengths with a full factor matrix

For: Students, engineers, builders and travellers

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By Miguel Coelho · Edition 2.0
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EXACT DEFINITION	FORMULA	REVERSE	WORKED EXAMPLE
1 in = 25.4 mm; 1 ft = 0.3048 m; 1 mi = 1.609 344 km; 1 nmi = 1852 m	m = ft × 0.3048; km = mi × 1.609 344	ft = m ÷ 0.3048; mi = km ÷ 1.609 344	6 ft = 72 in = 1.8288 m

Matrix values use 6 significant figures; tables are rounded as shown.

Factor matrix — 1 unit in every other unit

1 unit =	mm	cm	m	km	in	ft	yd	mi	nmi
1 mm	1	0.1	0.001	1×10^{-6}	0.0393701	0.00328084	0.00109361	6.21371×10^{-7}	5.39957×10^{-7}
1 cm	10	1	0.01	1×10^{-5}	0.393701	0.0328084	0.0109361	6.21371×10^{-6}	5.39957×10^{-6}
1 m	1,000	100	1	0.001	39.3701	3.28084	1.09361	6.21371×10^{-4}	5.39957×10^{-4}
1 km	1×10^{6}	100,000	1,000	1	39,370.1	3,280.84	1,093.61	0.621371	0.539957
1 in	25.4	2.54	0.0254	2.54×10^{-5}	1	0.0833333	0.0277778	1.57828×10^{-5}	1.37149×10^{-5}
1 ft	304.8	30.48	0.3048	3.048×10^{-4}	12	1	0.333333	1.89394×10^{-4}	1.64579×10^{-4}
1 yd	914.4	91.44	0.9144	9.144×10^{-4}	36	3	1	5.68182×10^{-4}	4.93737×10^{-4}
1 mi	1.60934×10^{6}	160,934	1,609.34	1.60934	63,360	5,280	1,760	1	0.868976
1 nmi	1.852×10^{6}	185,200	1,852	1.852	72,913.4	6,076.12	2,025.37	1.15078	1

Inches to centimetres and millimetres

Inches (in)	Centimetres (cm)	Millimetres (mm)	Inches (in)	Centimetres (cm)	Millimetres (mm)	Inches (in)	Centimetres (cm)	Millimetres (mm)
1	2.54	25.4	**17**	43.18	431.8	**33**	83.82	838.2
2	5.08	50.8	**18**	45.72	457.2	**34**	86.36	863.6
3	7.62	76.2	**19**	48.26	482.6	**35**	88.90	889.0
4	10.16	101.6	**20**	50.80	508.0	**36**	91.44	914.4
5	12.70	127.0	**21**	53.34	533.4	**37**	93.98	939.8
6	15.24	152.4	**22**	55.88	558.8	**38**	96.52	965.2
7	17.78	177.8	**23**	58.42	584.2	**39**	99.06	990.6
8	20.32	203.2	**24**	60.96	609.6	**40**	101.60	1,016.0
9	22.86	228.6	**25**	63.50	635.0	**41**	104.14	1,041.4
10	25.40	254.0	**26**	66.04	660.4	**42**	106.68	1,066.8
11	27.94	279.4	**27**	68.58	685.8	**43**	109.22	1,092.2
12	30.48	304.8	**28**	71.12	711.2	**44**	111.76	1,117.6
13	33.02	330.2	**29**	73.66	736.6	**45**	114.30	1,143.0
14	35.56	355.6	**30**	76.20	762.0	**46**	116.84	1,168.4
15	38.10	381.0	**31**	78.74	787.4	**47**	119.38	1,193.8
16	40.64	406.4	**32**	81.28	812.8	**48**	121.92	1,219.2

Feet to metres

Feet (ft)	Metres (m)	Feet (ft)	Metres (m)	Feet (ft)	Metres (m)	Feet (ft)	Metres (m)
1	0.305	**16**	4.877	**31**	9.449	**46**	14.021
2	0.610	**17**	5.182	**32**	9.754	**47**	14.326
3	0.914	**18**	5.486	**33**	10.058	**48**	14.630

Feet (ft)	Metres (m)	Feet (ft)	Metres (m)	Feet (ft)	Metres (m)	Feet (ft)	Metres (m)
4	1.219	**19**	5.791	**34**	10.363	**49**	14.935
5	1.524	**20**	6.096	**35**	10.668	**50**	15.240
6	1.829	**21**	6.401	**36**	10.973	**51**	15.545
7	2.134	**22**	6.706	**37**	11.278	**52**	15.850
8	2.438	**23**	7.010	**38**	11.582	**53**	16.154
9	2.743	**24**	7.315	**39**	11.887	**54**	16.459
10	3.048	**25**	7.620	**40**	12.192	**55**	16.764
11	3.353	**26**	7.925	**41**	12.497	**56**	17.069
12	3.658	**27**	8.230	**42**	12.802	**57**	17.374
13	3.962	**28**	8.534	**43**	13.106	**58**	17.678
14	4.267	**29**	8.839	**44**	13.411	**59**	17.983
15	4.572	**30**	9.144	**45**	13.716	**60**	18.288

Miles to kilometres and nautical miles

Miles (mi)	Kilometres (km)	Nautical miles (nmi)	Miles (mi)	Kilometres (km)	Nautical miles (nmi)
1	1.61	0.87	**30**	48.28	26.07
2	3.22	1.74	**35**	56.33	30.41
3	4.83	2.61	**40**	64.37	34.76
4	6.44	3.48	**45**	72.42	39.10
5	8.05	4.34	**50**	80.47	43.45
6	9.66	5.21	**55**	88.51	47.79
7	11.27	6.08	**60**	96.56	52.14
8	12.87	6.95	**65**	104.61	56.48
9	14.48	7.82	**70**	112.65	60.83
10	16.09	8.69	**75**	120.70	65.17
11	17.70	9.56	**80**	128.75	69.52
12	19.31	10.43	**85**	136.79	73.86
13	20.92	11.30	**90**	144.84	78.21
14	22.53	12.17	**95**	152.89	82.55
15	24.14	13.03	**100**	160.93	86.90
16	25.75	13.90	**150**	241.40	130.35
17	27.36	14.77	**200**	321.87	173.80
18	28.97	15.64	**250**	402.34	217.24
19	30.58	16.51	**500**	804.67	434.49
20	32.19	17.38	**1,000**	1,609.34	868.98
25	40.23	21.72			

Sources and method

- **International Yard and Pound Agreement (1959)** — 1 in = 25.4 mm, 1 ft = 0.3048 m, 1 lb = 0.453 592 37 kg exactly
- **NIST Special Publication 811** — Guide for the Use of the International System of Units (www.nist.gov/pml/special-publication-811)
- **BIPM SI Brochure, 9th edition** — Definitions of the SI units, including the kelvin (www.bipm.org/en/publications/si-brochure)

Conversion values on this sheet are generated by the AllUnitConversions conversion library and automatically checked against the exact definitions above before the PDF is produced; reference tables are taken from the sources listed. Interactive version, corrections and more charts: **allunitconversions.com/length-conversion-chart**