

Conversion Factors for Units of Mass

All shaded figures are exact

Units of Mass not greater than Pounds and Kilograms

UNITS	GRAINS	APOTHECARIES SCRUPLES	PENNYWEIGHTS	AVOIRDUPOIS DRAMS	APOTHECARIES DRAMS	AVOIRDUPOIS OUNCES
1 grain =	1	0.05	0.041 666 67	0.036 571 43	0.016 666 67	0.002 285 714
1 apoth. scruple =	20	1	0.833 333 3	0.731 428 6	0.333 333 3	0.045 714 29
1 pennyweight =	24	1.2	1	0.877 714 3	0.4	0.054 857 14
1 avdp. dram =	27.343 75	1.367 187 5	1.139 323	1	0.455 729 2	0.062 5
1 apoth. dram =	60	3	2.5	2.194 286	1	0.137 142 9
1 avdp. oz =	437.5	21.875	18.229 17	16	7.291 667	1
1 apoth. or troy ounce =	480	24	20	17.554 29	8	1.097 143
1 apoth. or troy pound =	5760	288	240	210.651 4	96	13.165 71
1 avdp. lb =	7000	350	291.666 7	256	116.666 7	16
1 milligram =	0.015 432 36	0.000 771 617 9	0.000 643 014 9	0.000 564 383 4	0.000 257 206 0	0.000 035 273 96
1 gram =	15.432 36	0.771 617 9	0.643 014 9	0.564 383 4	0.257 206 0	0.035 273 96
1 kilogram =	15432.36	771.617 9	643.014 9	564.383 4	257.206 0	35.273 96

Units of Mass not greater than Pounds and Kilograms

UNITS	APOTHECARIES OR TROY OUNCES	APOTHECARIES OR TROY POUNDS	AVOIRDUPOIS POUNDS	MILLIGRAMS	GRAMS	KILOGRAMS
1 grain =	0.002 083 333	0.00 173 611 1	0.000 142 857 1	64.798 91	0.064 798 91	0.000 064 798 91
1 apoth. scruple =	0.041 666 67	0.003 472 22	0.002 857 143	1295.978 2	1.295 978 2	0.001 295 978 2
1 pennyweight =	0.05	0.004 166 667	0.003 428 571	1555.173 84	1.555 173 84	0.001 555 173 84
1 avdp. dram =	0.056 966 15	0.004 747 179	0.003 906 25	1771.845 195 312 5	1.771 845 195 312 5	0.001 771 845 195 312 5
1 apoth. dram =	0.125	0.010 416 67	0.008 571 429	3887.934 6	3.887 934 6	0.003 887 934 6
1 avdp. oz =	0.911 458 3	0.075 954 86	0.062 5	28 349.523 125	28.349 523 125	0.028 349 523 125
1 apoth. or troy ounce =	1	0.083 333 333	0.068 571 43	31 103.476 8	31.103 476 8	0.031 103 476 8
1 apoth. or troy pound =	12	1	0.822 857 1	373 241.721 6	373.241 721 6	0.373 241 721 6
1 avdp. lb =	14.583 33	1.215 278	1	453 592.37	453.592 37	0.453 592 37
1 milligram =	0.000 032 150 75	0.000 002 679 229	0.000 002 204 623	1	0.001	0.000 0001
1 gram =	0.032 150 75	0.002 679 229	0.002 204 623	1000	1	0.001
1 kilogram =	32.150 75	2.679 229	2.204 623	1,000,000	1000	1

Units of Mass not greater than Avoirdupois Ounces

UNITS	AVOIRDUPOIS OUNCES	AVOIRDUPOIS POUNDS	SHORT HUNDRED-WEIGHTS	SHORT TONS	LONG TONS	KILOGRAMS	METRIC TONS
1 avdp. oz =	1	0.0625	0.000 625	0.000 031 25	0.000 027 901 79	0.028 349 523 125	0.000 028 349 523 125
1 avdp. lb =	16	1	0.01	0.000 5	0.000 446 428 6	0.453 592 37	0.000 453 592 37
1 short hundredweight =	1600	100	1	0.05	0.044 642 86	45.359 237	0.045 359 237
1 short ton =	32,000	2000	20	1	0.892 857 1	907.184 74	0.907 184 74
1 long ton =	35,840	2240	22.4	1.12	1	1016.046 908 8	1.016 046 908 8
1 kilogram =	35.273 96	2.204 623	0.022 046 23	0.001 102 311	0.000 984 206 5	1	0.001
1 metric ton =	35 273.96	2204.623	22.046 23	1.102 311	0.984 206 5	1000	1

Based on National Institute of Standards and Technology LC-1071, Factors for High-Precision Conversions, July 1976