

# Appendix I

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## Unit Conversions

## Appendix I. Unit Conversions

### 1 LENGTH

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2 1 in (inch) = 2.54 cm (centimeters)  
 3 25.4 mm (millimeters)  
 4 25,400  $\mu\text{m}$  (microns)

5 1 ft (foot) = 0.3048 m (meters)  
 6 30.48 cm

7 1 mi (mile) = 5,280 ft  
 8 1,609.344 m  
 9 1.6093 km (kilometers)

### 10 AREA

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11 1 ft<sup>2</sup> (square foot) = 0.0929 m<sup>2</sup> (square meters)

12 1 acre = 43,560 ft<sup>2</sup>  
 13 = 0.0016 mi<sup>2</sup> (square miles)  
 14 = 0.4047 ha (hectares)  
 15 = 4,046.825 m<sup>2</sup>

16 1 mi<sup>2</sup> = 639.9974 ac  
 17 = 258.9988 ha  
 18 = 2.5899 km<sup>2</sup> (square kilometers)

### 19 MASS

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20 1 lb (pound) = 453.5924 g (grams)  
 21 = 0.4536 kg (kilograms)

22 1 ton (short ton, U.S.) = 2,000 lbs  
 23 = 907.185 kg  
 24 = 0.9072 metric tons

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**1 VOLUME OR CAPACITY (LIQUID MEASURE)**


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2	1 bbl (barrel)	=	42 gal (gallons, U.S.)
3		=	158.9873 L (liters)
4	1 gal	=	231 in <sup>3</sup> (cubic inches)
5		=	0.1337 ft <sup>3</sup> (cubic feet)
6		=	3.7854 L
7		=	0.0039 m <sup>3</sup> (cubic meters)
8		=	3.7854 × 10 <sup>-9</sup> Mm <sup>3</sup> (million cubic meters)
9	1 Mgal (million gallons)	=	1.3368 × 10 <sup>5</sup> ft <sup>3</sup>
10	1 ft <sup>3</sup>	=	1,728 in <sup>3</sup>
11		=	7.4805 gal
12		=	28.3169 L
13		=	0.0283 m <sup>3</sup>
14	1 mi <sup>3</sup> (cubic mile)	=	4.1682 km <sup>3</sup> (cubic kilometers)
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**16 CONCENTRATION**


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17	1 mg/L (milligram per liter)	=	1.0 × 10 <sup>-6</sup> kg/L (kilograms per liter)
18		=	1.0 × 10 <sup>-3</sup> g/L (grams per liter)
19		=	1,000 µg/L (micrograms per liter)
20		=	1.001 ppm (parts per million)
21		=	8.3454 × 10 <sup>-6</sup> lb/gal (pounds per gallon)
22		=	6.2428 × 10 <sup>-5</sup> lb/ft <sup>3</sup> (pounds per cubic foot)

**23 SPEED**


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24	1 mi/hr (mile per hour)	=	1.4666̄ ft/s (feet per second)
25		=	0.4470 m/s (meters per second)

**26 DENSITY**


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27	1 g/mL	=	1,000 g/L
28		=	1.0 × 10 <sup>6</sup> mg/L

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**1 VOLUME PER UNIT TIME**


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2	1 ft <sup>3</sup> /s (cubic foot per second)	=	448.8312 gpm (gallons per minute)
3		=	0.6163 Mgal/d (million gallons per day)
4		=	28.3169 L/s (liters per second)
5		=	0.0283 m <sup>3</sup> /s (cubic meters per second)
6	1 ft <sup>3</sup> /day (cubic feet per day)	=	0.0052 gpm
7		=	7.4805 gpd
8		=	0.0283 m <sup>3</sup> /d (cubic meters per day)
9			
10	1 bbl/day (barrel per day)	=	42 gpd
11		=	158.9873 L/d (liters per day)

**12 PRESSURE**


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13	1 psi (pound per square inch)	=	6,894.7573 Pa (pascals)
14		=	0.068 atm (standard atmospheres)

**15 RADIATION**


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**16 Activity**

17	1 Ci (curie)	=	$3.7 \times 10^{10}$ decays per second
18	1 Bq (becquerel)	≈	$2.703 \times 10^{-11}$ Ci
19		≈	27.027 pCi (picocuries)
20	1 pCi	=	0.037 Bq
21		=	0.037 decays per second
22		=	2.22 decays per minute

**23 Exposure**

24	1 rem (röntgen equivalent in man)	=	0.01 Sv (sieverts)
25	1 Sv	=	1 J/kg (joule per kilogram)

**26 ELECTRIC CONDUCTANCE**


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27	1 S (siemen)	=	1 Ω <sup>-1</sup> (reciprocal of resistance)
28		=	1 A/V (ampere per volt)
29		=	1 kg <sup>-1</sup> • m <sup>-2</sup> • s <sup>3</sup> • A <sup>2</sup> (second cubed- ampere squared per kilogram-square meter)
30			
31		=	1.0 × 10 <sup>6</sup> μS (microsiemens)

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**1 TEMPERATURE**

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2  $[\text{°F (degrees, Fahrenheit)} - 32] \times 5/9 = \text{°C (degrees, Celsius)}$

**3 PERMEABILITY**

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4  $1 \text{ cm}^2 = 1.0 \times 10^{-4} \text{ m}^2$   
5  $\approx 1.0 \times 10^8 \text{ D (darcys)}$   
6  $1 \text{ D} \approx 1.0 \times 10^{-12} \text{ m}^2$   
7  $= 1,000 \text{ mD (millidarcys)}$   
8  $= 1.0 \times 10^6 \text{ }\mu\text{D (microdarcys)}$