Prefixes (البادئات)

Prefixes convert the base units into units that are appropriate for the item being measured.

Prefix	Abbreviation	Meaning	Example
Giga	G	10^9	1 gigameter (Gm) = 1×10^9 m
Mega	M	10^6	1 megameter (Mm) = 1×10^6 m
Kilo	k	10^3	1 kilometer (km) = 1×10^3 m
Deci	d	10^{-1}	1 decimeter (dm) = 0.1 m
Centi	c	10^{-2}	1 centimeter (cm) = 0.01 m
Milli	m	10^{-3}	1 millimeter (mm) = 0.001 m
Micro	μ[a]	10^{-6}	1 micrometer (μm) = 1×10^{-6} m
Nano	n	10^{-9}	1 nanometer (nm) = 1×10^{-9} m
Pico	p	10^{-12}	1 picometer (pm) = 1×10^{-12} m
Femto	f	10^{-15}	1 femtometer (fm) = 1×10^{-15} m

Table 1-2 Prefixes for SI Units

Factor	Prefix[a]	Symbol
10^{24}	yotta-	Y
10^{21}	zetta-	Z
10^{18}	exa-	E
10^{15}	peta-	P
10^{12}	tera-	T
10^9	**giga-**	**G**
10^6	**mega-**	**M**
10^3	**kilo-**	**k**
10^2	hecto-	h
10^1	deka-	da
10^{-1}	deci-	d
10^{-2}	**centi-**	**c**
10^{-3}	**milli-**	**m**
10^{-6}	**micro-**	**μ**
10^{-9}	**nano-**	**n**
10^{-12}	**pico-**	**p**
10^{-15}	femto-	f
10^{-18}	atto-	a
10^{-21}	zepto-	z
10^{-24}	yocto-	y

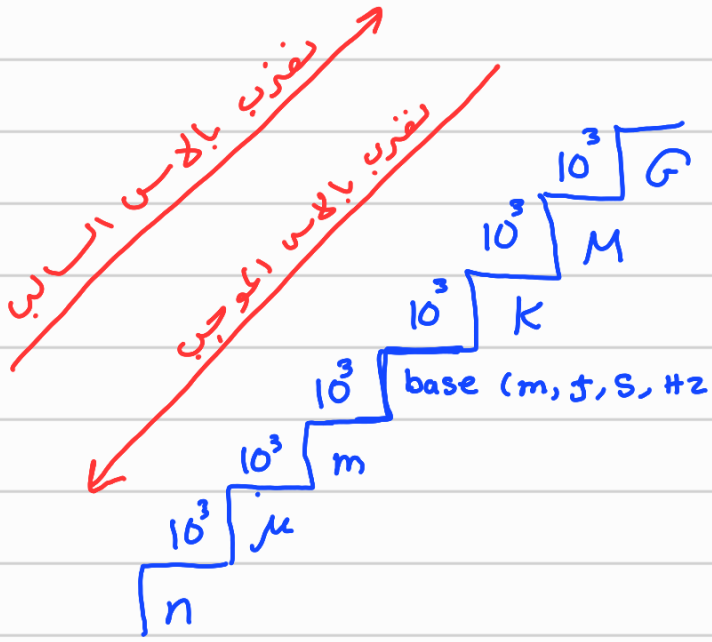
5 000 000 J

5 Mega J 5MJ

prefix

0.0000003m = 3μm

prefix m



Convert * $3kJ \longrightarrow J$

3×10^3 J

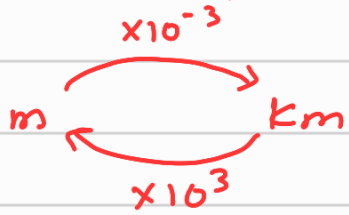
* $5MHz \longrightarrow mHz$

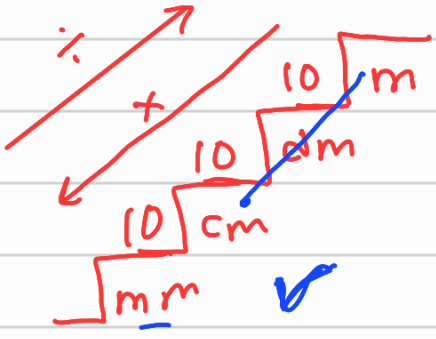
5×10^9 mHz

* $5000\ nS \longrightarrow S$

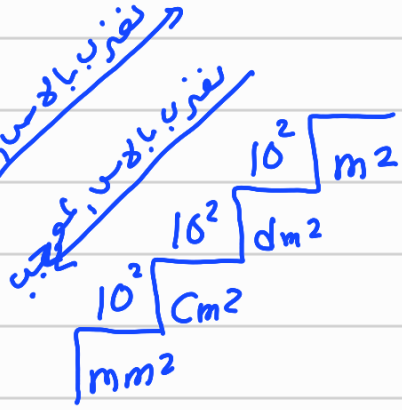
$5000 \times 10^{-9} = 5 \times 10^{-6}$ S

جدول تحويلات الأطوال





تحويلات المساحة



Convert

$5mm \longrightarrow m$

$\frac{5}{1000} = 0.005 = 5 \times 10^{-3}$

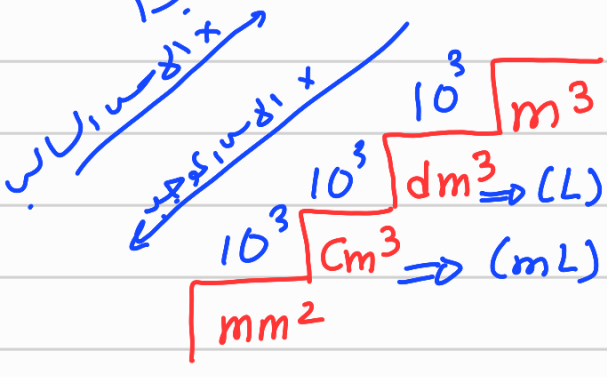
$25000\ cm^2 \longrightarrow m^2$

اول حل $\frac{25000}{(100)^2} = 2.5\ m^2$

حل ثاني

$25000 \times 10^{-4} = 2.5\ m^2$

تحويلات الحجوم



Convert

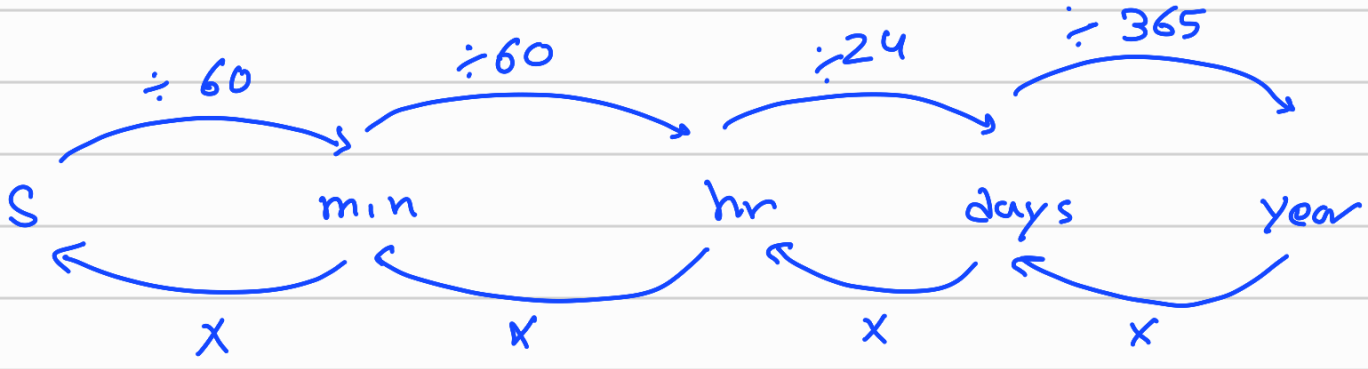
$3\ L \longrightarrow mL$

$3 \times 10^3 = 3000\ mL$

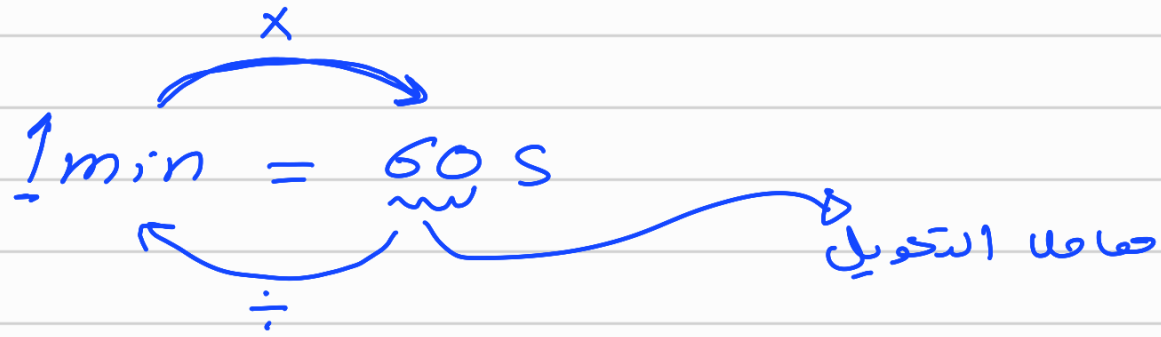
$500\ mL \longrightarrow L$

$500 \times 10^{-3} = 0.5\ L$

تحويلات الزمن



التحويلات



Conversion factor

$3\,\text{min} = \frac{3\times 10}{\quad}\,\text{s}$

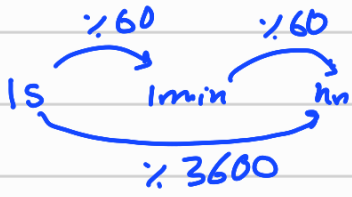
$= 180\,\text{s}$

$1\,\text{yd} = 0.91\,\text{m}$

$23\,\text{yd} = \underline{\quad}\,\text{m}$

$23 \times 0.91 \approx 20.9\,\text{m}$

$5\,\text{m} = \frac{5}{0.91}\,\text{yd} \approx 5.5\,\text{yd}$



m/s ⟿ Km/hr

$\frac{m}{s} \longrightarrow \frac{Km}{hr}$

Conver 3 m/s ⟿ Km/hr

$\frac{3\,m}{1\,s} = \frac{3\times 10^{-3}}{\frac{1}{3600}}\,\frac{Km}{hr} = 3\times 10^{-3}\times 3600$

$= 10.8\,\text{Km/hr}$