Phys11 Conversions : Notes-90

Examples of conversions :

e.g. 250 meters = z centimeters. Replace centimeters with 10^{-2} meters. 250 meters = z x10^{-2} meters. Units on both sides are now the same. Therefore 250 = z x 10^{-2}. Multiply both sides by 10^{2}. Therefore : z = 25,000 = 2.5 x 10^{4}.

e.g. 35 µg = w kg. Replace kg with 10^{3} g and replace µg with 10^{-6} g. 35 x 10^{-6} g = w x 10^{3} g. Units on both sides are now the same. Therefore 35 x 10^{-6} = w x 10^{3}. Multiply both sides by 10^{-3}. Therefore : w = 35 x 10^{-9} = 3.5 x 10^{-8}.

e.g. 87 centimeters = Y millimeters , solve for Y. 87x10^{-2} meters = Y x10^{-3} meters , cancel meters on both sides. 87x10^{-2} = Y 10^{-3} , multiply both sides by 10^{3}. 87x10^{-2}x10^{3} = Y 10^{-3}x10^{3}. 87x10^{1} = Y. Y = 8.7x10^{2}

e.g. 5.0 m^3 = Z cm^3. 5.0 $(1m)^3$ = Z cm^3. 5.0 $(100\ cm)^3$ = Z cm^3. 5.0 x 10^{6} cm^3 = Z cm^3. Z = 5.0x10^{6}

e.g. 35 km/hr = __x__ m/s
35(km)/(hr) = __x__ m/s
35 (10^{3}m)/(3600s) = __x__ m/s
35x1000/3600 m/s = __x__ m/s
9.7 = x.