

Name: _____

Chemistry Practice: Scientific Notation and Conversions

1. Put it together: Write the appropriate abbreviation of the SI base **unit** with **prefix** for each description.

- a.) _____ 1/10th of time f.) _____ 1/1 000 000 of temperature
b.) _____ 1000 times base unit of temperature g.) _____ 1×10^6 times amt. Sub.
c.) _____ 1/100 of length h.) _____ 1×10^{-9} of time
d.) _____ 1/1000 of amount of substance i.) _____ 1/1 000 000 of mass*
e.) _____ 1000 times base unit of mass* j.) _____ 1×10^{-6} of length

2. Convert the following:

- a) 52 km = _____ Mm z) 0.034 mol = _____ mmol
b) 2.4 μg = _____ mg aa) 3.5 nm = _____ μm
c) 0.12 mol = _____ mmol bb) $681 \times 10^{-6} \text{ mL}$ = _____ nm^3
d) 0.5 Gbyte = _____ Mbyte cc) 920 ms = _____ ns
e) 7.2 mm = _____ cm dd) 0.1 Mg = _____ Gg
f) $2 \times 10^{-2} \text{ g}$ = _____ mg ee) 56 ml = _____ L
g) $5.6 \times 10^3 \text{ nm}$ = _____ m ff) 0.8 dm^3 = _____ cm^3
h) $6.0 \times 10^4 \text{ K}$ = _____ kK gg) 900 mL = _____ cm^3
i) 0.02 kg = _____ g hh) 35 mg = _____ g
j) 500 000 000 mmol = _____ mol ii) $65 000 \text{ cm}^3$ = _____ L
k) 3.5 kJoules = _____ Joules jj) 28 L = _____ mL
l) 0.002 mg = _____ kg kk) 212 mmol = _____ mol
m) $2 \times 10^5 \text{ cm}$ = _____ m ll) 570 μm = _____ mm
n) 0.10 mole = _____ mmole mm) 4 dm^3 = _____ mL
o) 2000 kByte = _____ Mbyte nn) 0.13 mol = _____ mmol
p) 0.0056 Ms = _____ ms oo) 0.50 mL = _____ dm^3
q) $2 \times 10^4 \text{ cm}$ = _____ m pp) 200 mm = _____ m
r) 0.24 mg = _____ cg qq) $2 \times 10^2 \text{ Ms}$ = _____ μs
s) 35 Pascals = _____ kPascals rr) 30000 ml = _____ L
t) **0.003 Ms** = _____ s ss) 0.46 dm^3 = _____ cm^3
u) $45 \times 10^3 \text{ ml}$ = _____ dm^3 tt) $2.6 \times 10^5 \text{ dm}^3$ = _____ L
v) 60 m^3 = _____ cm^3 uu) $4.0 \times 10^6 \text{ cm}$ = _____ m
w) $3.5 \times 10^2 \mu\text{L}$ = _____ L vv) 0.0125 dm^3 = _____ m^3
x) 0.025 km^2 = _____ m^2
y) $8.2 \times 10^{18} \text{ liter}$ = _____ cm^3

3. Rank from smallest to largest:

- a.) A.) 200 mL B.) 0.500 dm³ C.) 1 L D.) 10cm³ _____
b.) A.) 5200 cm³ B.) 625 ml C.) 3x10⁻¹ dm³ D.) 0.02 L _____
c.) A.) 0.25 ml B.) 3.0 x10³ cm³ C.) 25 L D.) 0.05 dm³ _____

4. Calculate the following. Use scientific notation when appropriate. Remember units and give the name of the derived unit! Ex. cm x cm x cm *Volume*

See: www.chemisd.com web page Extensive SI Unit List

a.) 25 cm x 4.1 cm x 0.2 cm =

i.) 5.61 x10⁻⁸g + 2.0x10⁵ g =

b.) (0.0557 g + 0.0865g) / 2.0 x10⁻² s

j.) 5.25 x10⁻⁸ mol ÷ 1.68 x10⁻⁶ dm³ =

c.) 4.67g / (3.0 cm x 2.4 cm x 0.002 cm)

k.) $\frac{(4.00 \times 10^{20} \text{ atoms} + 9.71 \times 10^{20} \text{ atoms})}{3 \times 10^{-1} \text{ dm}^3}$ =

d.) (5.x10⁵ kg x 2.6 N) / (7.1x10⁴m x 3.0 x10² m)

l.) 2.0x10⁹ A / 5.0 x10⁵ m x 2.0 x10³ m =

e.) (0.13 mol + 0.22 mol) / (.24dm x .83 dm x .31 dm)

m.) 2.000 x10⁴ V / 18.6 A =

f.) 2.500 x10⁴ m x 5.000 x10³ m =

n.) 3.2x10⁻² g + 120 mg + 3x10⁵ µg = (report in mg)

g.) 1.90 x10⁴ J x 2.0x10¹ g⁻¹ x 5.8 x10⁰ °C⁻¹

o.) Determine the pressure in Pascals if these quantities are measured:

Mass: 3600 g

Length: 2500 cm

Time: 0.33 s²

h.) (5.20 x10² g + 3.16 x10² g) ÷ (88.00 mL - 17.00 mL) =