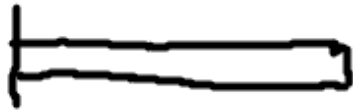


Sig figs



1	2	3	4	cm
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3.6 cm

uncertain

What do they tell you?

how accurate a number,

math with sig figs

① \times and \div least # of s.f. in your answer

$$\begin{array}{r} 3.33 \times .22 = .7326 \\ (3) \quad (2) \quad (2) \end{array} \quad \text{round} \quad \textcircled{.73}$$

② $+$ and $-$ least # of decimal places

$$\begin{array}{r} 1.743 \\ + .21 \\ \hline 1.953 \end{array}$$

1.95

Unit conversions

$$1 \text{ m} = 100 \text{ cm} \quad \text{exact number}$$

$$\begin{array}{l} 1.75 \text{ m} \\ (3) \end{array} \times \frac{100 \text{ cm}}{1 \text{ m}} = \frac{175 \text{ cm}}{(3)}$$

Density

$$D = \frac{m}{V}$$

$\left(\frac{g}{mL} \text{ or } \frac{g}{cm^3} \right)$ (g) $(mL \text{ or } cm^3)$

algebra

$$D = \frac{m}{V}$$

$$m = V \cdot D$$

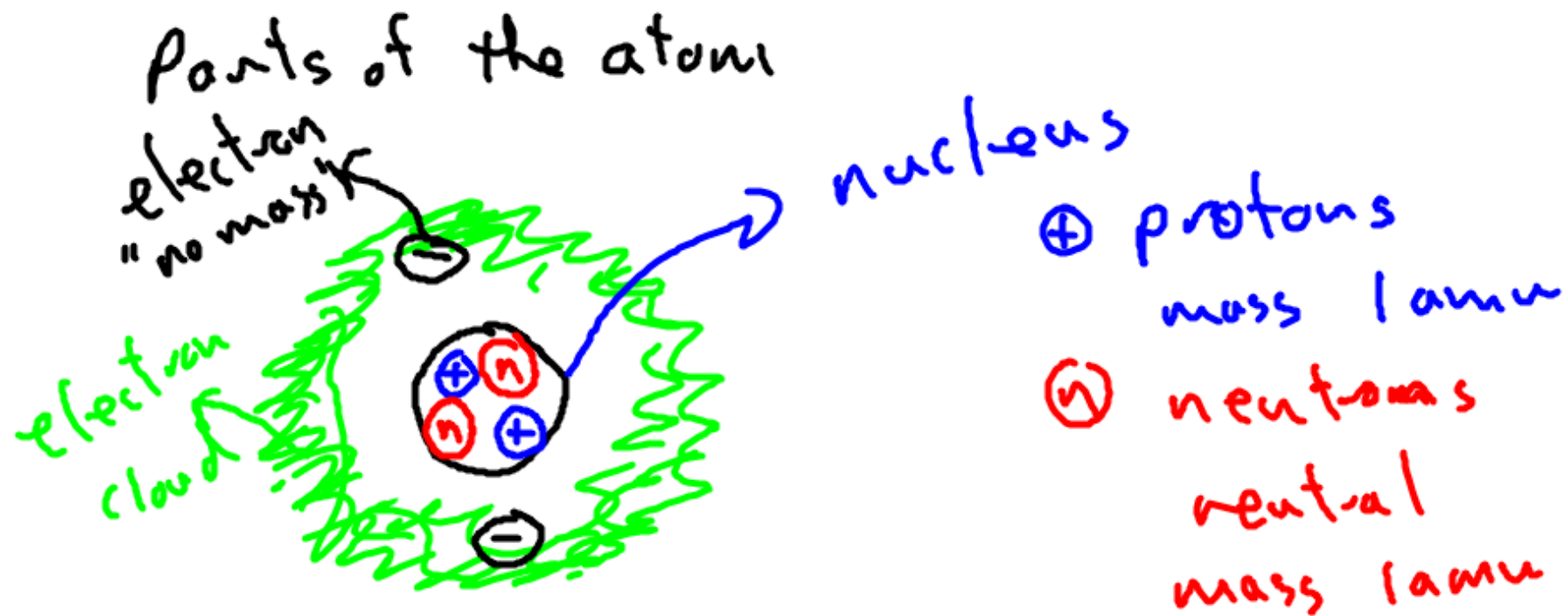
$$V = \frac{m}{D}$$

1.2 Elements and the structure of the atom

atom - smallest part of matter

element - group of the same atoms

compound - 2 or more elements bound together



electron orbital - path electrons follows

s



sphere

p



p_x orbital

p_y

p_z

Isotopes - atoms of same element
with different # of neutrons

Isotope symbol

Carbon - 14 - mass



p ⁺	6
n	8
e ⁻	6

$$\text{At mass} = \underline{\# \text{p}^+} + \underline{\# \text{n}}$$

physical and

chemical properties



things you
can observe



reactivity,

color, density,

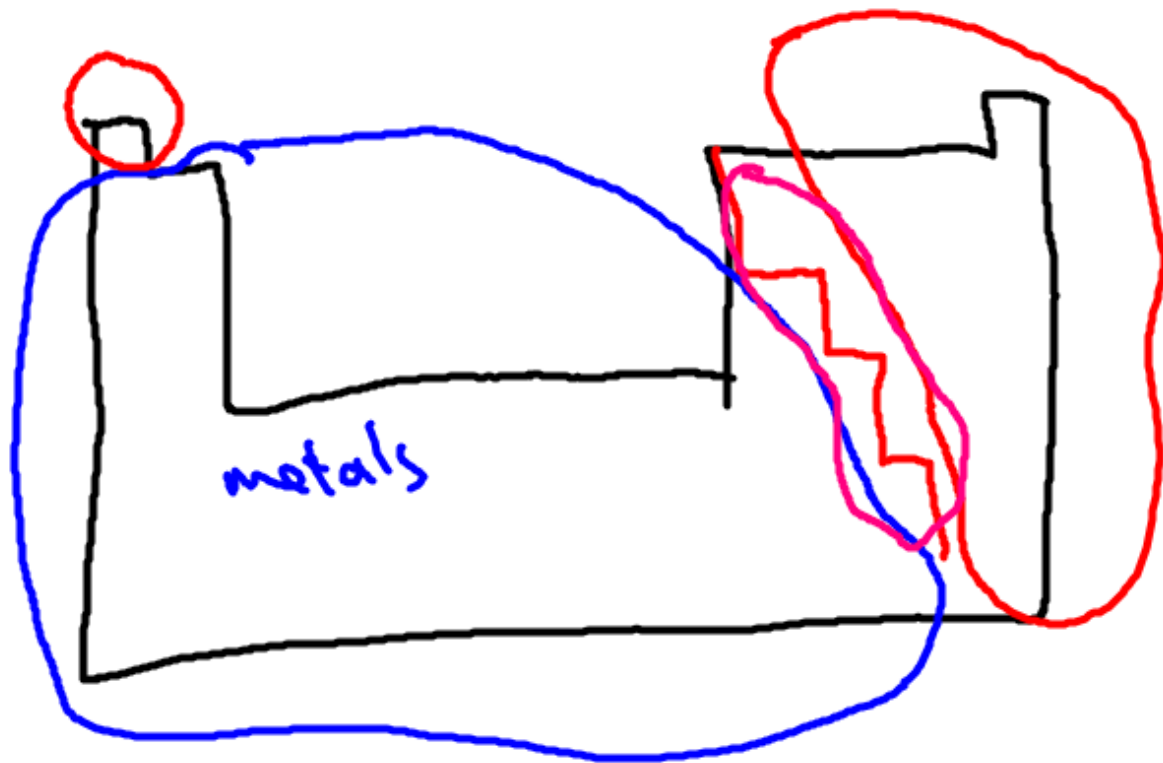
b.p. / m.p.


1.3 PT of Elements



- metals
- shiny
 - malleable/ductile
 - good conductors

- nonmetals
- dull
 - brittle
 - poor conductors
- metalloids
- have properties of both



 Groups and
(families)
similar properties

- 1 - alkali metals
- 2 - alkaline-earth metals
- 17 - halogens
- 18 - noble gases

Periods



neighbors are
alike

macronutrients

lots

> 100 mg

P. 29

micronutrients

very little

< 100 mg

1.4 Electrons

valence electrons - outer most e^- 's

How to determine? by the group #
(1, 2, 13-18)

what are they used for?

bonding

How many val e^- do atoms want?

8