Section I / Sig Fig rules and basic knowledge about all science courses/

1. It is for nonzero #s to be significant (1-9)
2. Beginning zeros are not significant
3. In between zeros are significant
4. Ending zeros are significant if there is a dot or line indicates it is important

Example : 700.0 (4 Sig Figs). 780(2 sig figs) 780_(3 sig figs)

Use of scientific notion

To express very large or small quantities

Rule of Addition/ Minus : 3.01-2.00=1.01 (The difference's decimal place would follow the one(either 3.01 or2.00) who has least decimal place)

Rules of multiple/division : 3.00/2.0(2 sig figs)=1.5 (so the dividend also has 2 sig figs)

Prefix conversion

1000 meters = 1.000*10^3 meters = 1.000 Km

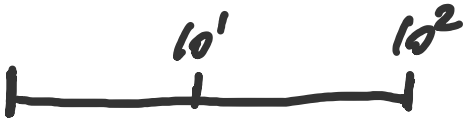
Table 5. SI prefixes

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

To convert it , you can draw a number-line diagram to show the difference

Ex

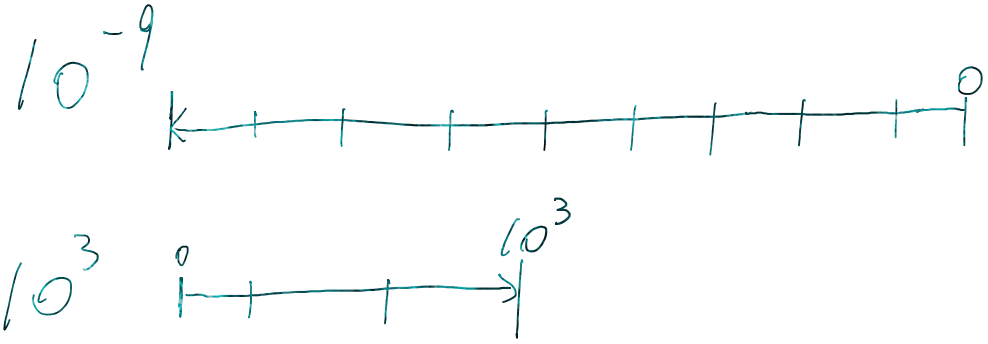
10^2



10^3

By knowing the difference between two powers , you can convert them easily.

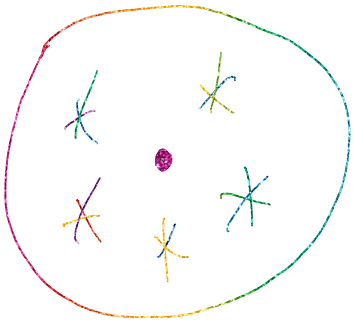
Another example



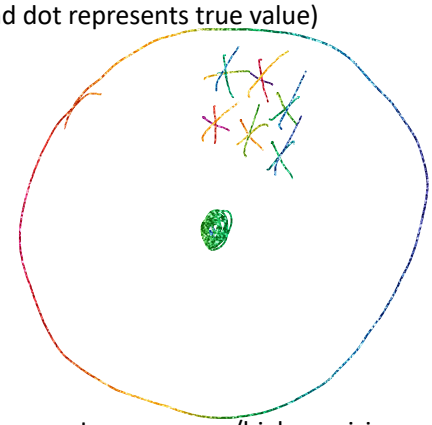
So combine them together, you can find the difference from 10^-9 to 10^3

So something like 1*10^3 meters would be 1*10^12 nanometers

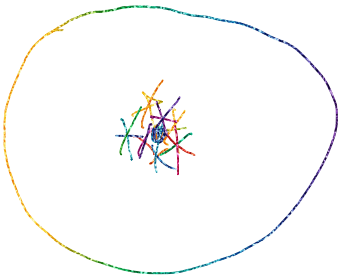
Precision &accuracy (* represents the measurements and dot represents true value)



High accuracy / low precision



Low accuracy/high precision



High accuracy / high precision

Precision : the nearness of sequential measurements
Accuracy : The measurements close to true value

Extensive property: amount measured does change before/after the measurements
Intensive property : amount measured does not change before/after the measurements

Side notes: precision is repeating data while accuracy is how much close to the true accurate result

Uncertainty reading: if the cylinder reading is 35.2 mL then add one (guessed) digit to the reading so it becomes 35.22mL.