* Our Course web site:

www.wileyplus.com/go/login

There you can find:

- Syllabus (contains all class info)
- Some Lab experiments
- Graph Paper
- WileyPlus Class page (Homework Portal and eBook)

* Please purchase and/or register your WileyPlus access code on the Wiley site and begin working on the Homework Problems in Chapter 1 and 2.

(Chapter 1 contains ~ no physics – it's just a discussion of units.)

Note: The access code is $49 and is only available at the Mesa Bookstore. They will snail-mail it to your physical address. **(It's $69 if you purchase it on Wiley's site ☹.)**

However, you can go (right now!!) to **www.wileyplus.com/go/login** and register for a 14-day FREE grace period and start viewing our

class lecture notes and videos, and begin the homework, and *then*, when you purchase the $49 access code from the Mesa Bookstore (and receive it in the US Mail…), you can enter your access code and it will allow you back into the course to access your homework that was in progress.

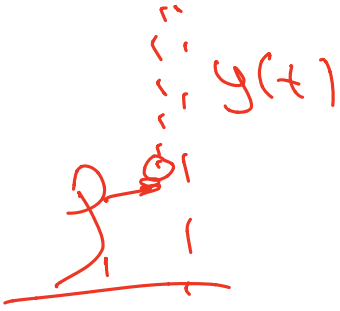
So, …please purchase this access code from the Mesa Bookstore ASAP!!!

* Please begin to read chapter 2 and work on the homework problems in Ch 2.

*** Please go online and find a quadratic equation program for your calculator!!**

$$ax^2 + bx + c = 0$$

(example: http://brownmath.com/ti83/quadrat.htm)



You do not want to solve these the long way…

Physics 195: Mechanics

Just as Dr. Phil  and 

Dr. Laura talk about relationships and commitment,

PHYSICS is the study of the relationships between *matter* and *energy* in the universe ( → ), and this course will require a huge time commitment from you.

That's why it's called a college '***degree***'.

You are studying your particular field of science to achieve a certain 'degree' of knowledge in that field.

Physics can be frustrating!

Before Physics 195:

You and your classmates this week.

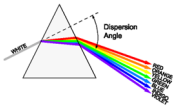
During Physics 195.

Some good news ...

Biology terms	Physics terms
enzymes	length
eukaryote	mass
ectoplasm	time
transcription	speed
translation	velocity
archaea	acceleration
biomass	projectile
endospores	force
eukarya	energy
evolution	momentum
gene expression	friction
genetic engineering	rolling
genus	rotation
Koch's postulates	frequency
metabolism	
mutation	
nucleoid	
prokaryote	

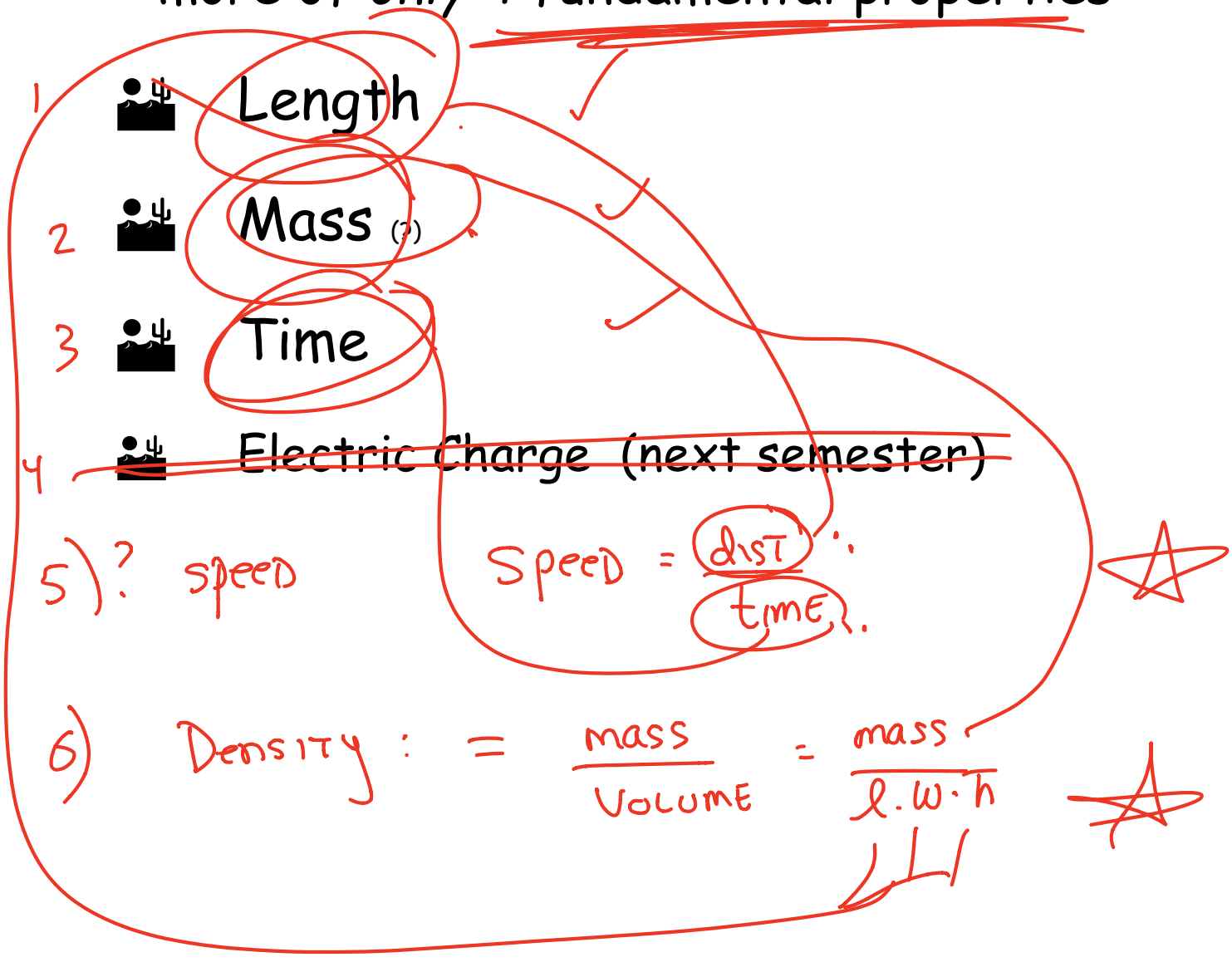
- Mechanics: 195 $\sum \vec{F} = m\vec{a}$

- Electricity & Magnetism: 196 $\vec{\nabla} \circ \vec{B} = 0$

- Optics and Modern Physics: 197 $E = mc^2$ 

So where do *we* start?

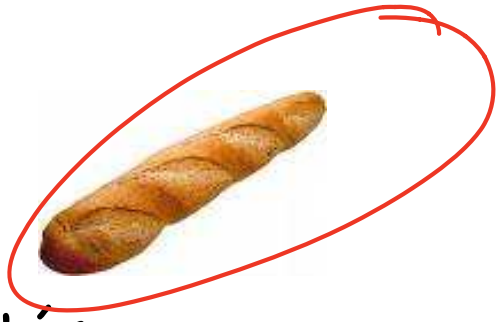
Measurement: Every physical property can be expressed in terms of one or more of *only* 4 fundamental properties:



If your boss offers you 75 per hour, would you take it?

UNITS.

Measurements of any physical property must be expressed in terms of a *number* and a *unit*.

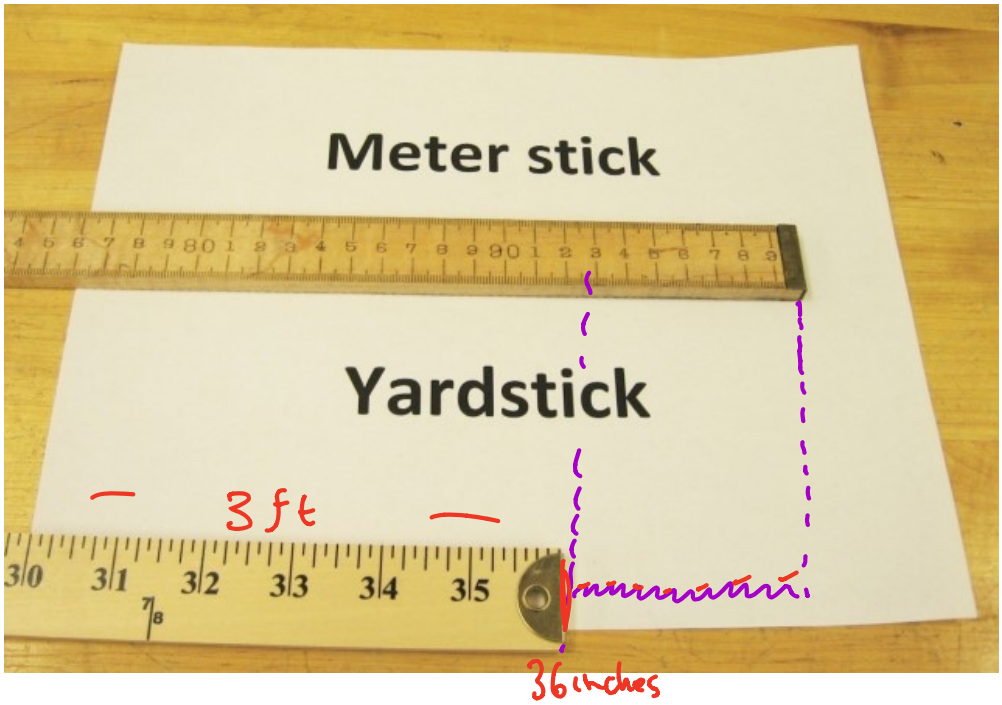


- Le **S**ystème international d'unités denoted as SI in all languages.

The SI system uses the metric system – a base 10 system.

The Metric System

Prefix:	Symbol:	Magnitude:	Meaning (multiply by):	Ex.
Yotta-	Y	10^{24}	1 000 000 000 000 000 000 000 000	
Zetta-	Z	10^{21}	1 000 000 000 000 000 000 000	
Exa-	E	10^{18}	1 000 000 000 000 000 000	
Peta-	P	10^{15}	1 000 000 000 000 000	
Tera-	T	10^{12}	1 000 000 000 000	
Giga-	G	10^{9}	1 000 000 000	
Mega-	M	10^{6}	1 000 000	
myria-	my	10^{4}	10 000	
kilo-	k	10^{3}	1000	1km = 1000m
hecto-	h	10^{2}	100	
deka-	da	10	10	
deci-	d	10^{-1}	0.1	
centi-	c	10^{-2}	0.01 100¢ = $1	100cm = 1m 1cm = 10^{-2} m = 0.01m
milli-	m	10^{-3}	0.001 0.5 mm	1000mm = 1m 1mm = 10^{-3} m = 0.001m
micro-	μ (mu)	10^{-6}	0.000 001	1000000 μm = 1m 1 μm = 10^{-6} m = 0.000001m
nano-	n	10^{-9}	0.000 000 001	
pico-	p	10^{-12}	0.000 000 000 001	
femto-	f	10^{-15}	0.000 000 000 000 001	
atto-	a	10^{-18}	0.000 000 000 000 000 001	
zepto-	z	10^{-21}	0.000 000 000 000 000 000 001	
yocto-	y	10^{-24}	0.000 000 000 000 000 000 000 001	



** 1 meter is about 3.3 feet. So:

2 meters ~ 6.6 feet

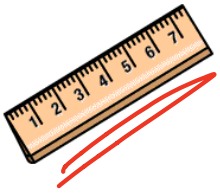
10 m ~ 33 ft

centimeters

The other side of the meter stick: inches

Included in the SI system is the mks system.

m: all *lengths* are measured in meters



k: all *masses* are measured in kilograms

1 kg?

1 liter of H_2O

s: all *time* is measured in seconds

. . .

Mass: A measure of a body's quantity of ~~stuff~~ ATOMS.

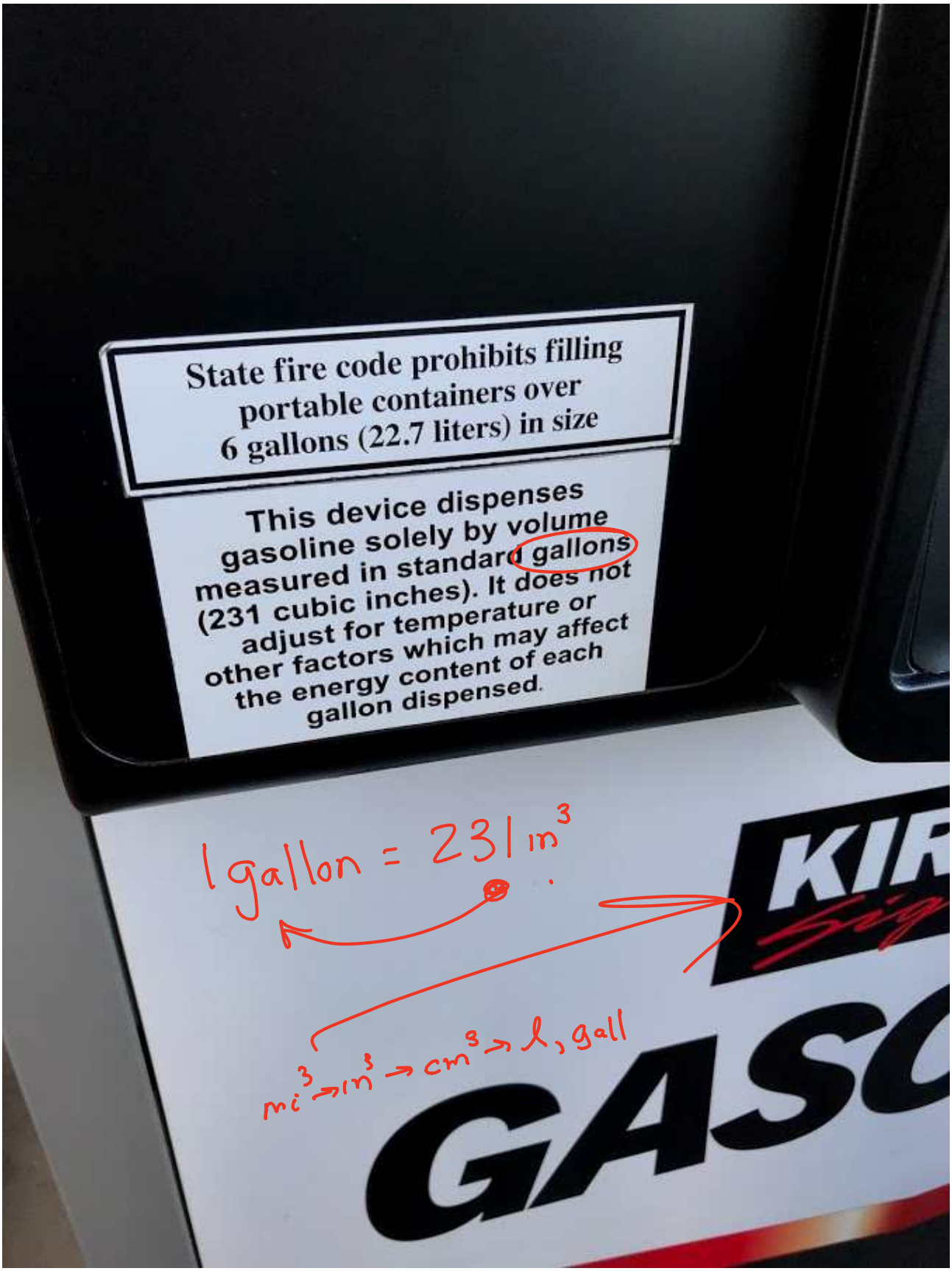
Sometimes we have to convert from our 'regular units' to the metric system.

1 inch = 2.54 centimeters

1 mile = 5280 feet

Know These!

One more 

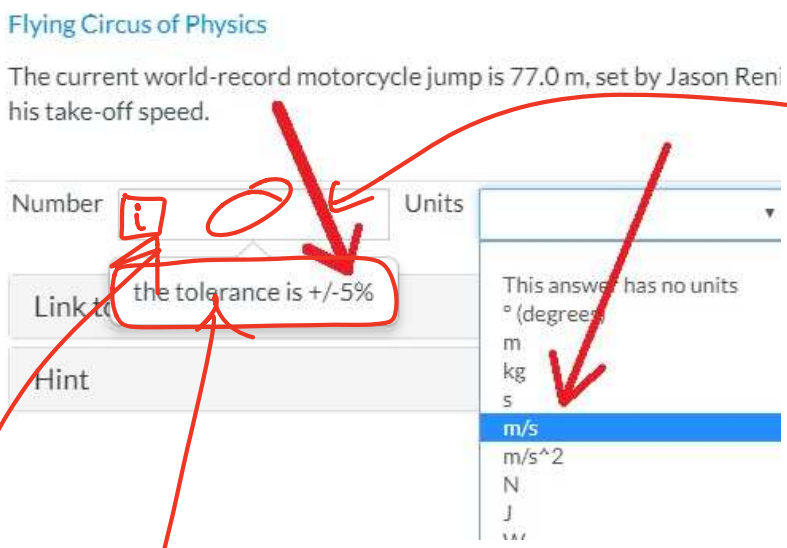

State fire code prohibits filling portable containers over 6 gallons (22.7 liters) in size
This device dispenses gasoline solely by volume measured in standard gallons (231 cubic inches). It does not adjust for temperature or other factors which may affect the energy content of each gallon dispensed.
1 gallon = 231 in³
mi³ → in³ → cm³ → l, gall
GASO

Tips for correctly entering homework answers on the WileyPlus website.

1. Do NOT round off your final answer. The WileyPlus site does ***not*** take in account the correct # of significant figures in your answer. However, when you put the cursor over the answer box, you will see a pop-up note reminding you that your answer must be within ± 5 % of the correct answer. (see below picture)

So if the correct answer is 100, and you submit 103.18004587, your answer will be graded as "correct" (it's less than 5% off) even though you have entered more significant figures than given.

Ex:



2. Do not round off intermediate calculations. If you first need to calculate three other values, do not round off any of *these* values when making your final calculation.

3. Exponential notation:

Exponential notation is entered as follows:

7.2 x 10^{6} is written in WileyPlus as: ***7.2E6*** and

1.8 x 10^{-4} is written in WileyPlus as: ***1.8E-4*** and so on.

4. Don't forget to add correct units (if needed) using the drop down menu in the box provided (see above picture).