

* 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.

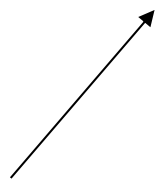
That's why it's called a college 'degree'.

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.

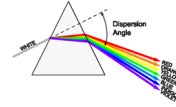


During Physics 195.

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:



Length



Mass (?)



Time



Electric Charge (next semester)

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

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

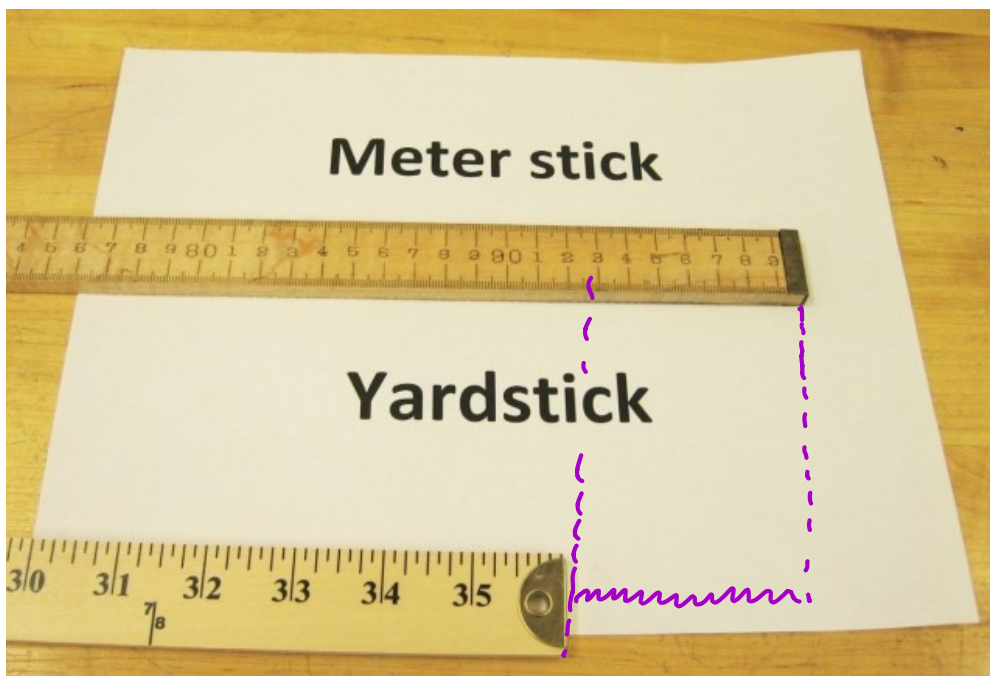


Le **S**ystème international d'unités is denoted as **SI** in all languages.

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}	1 000 000 000 000 000 000 000 000	
Exa-	E	10^{18}	1 000 000 000 000 000 000 000 000	
Peta-	P	10^{15}	1 000 000 000 000 000 000 000	
Tera-	T	10^{12}	1 000 000 000 000 000 000	
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	100cm = 1m 1cm = 10^{-2} m = 0.01m
milli-	m	10^{-3}	0.001	1000mm = 1m 1mm = 10^{-3} m = 0.001m
micro-	μ (mu)	10^{-6}	0.000 001	1000000 μ m = 1m 1 μ m = 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	

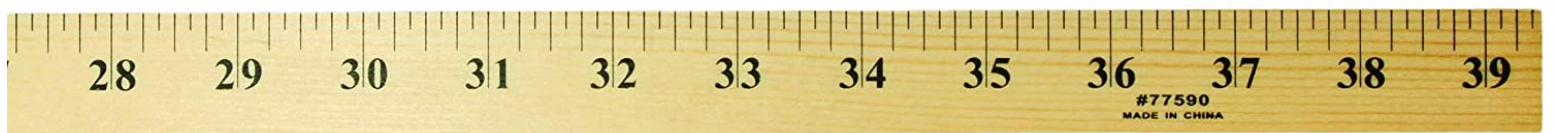


** 1 meter is about 3.3 feet. So:

2 meters ~ 6.6 feet

10 m ~ 33 ft

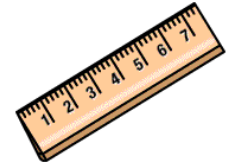
centimeters



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



s: all *time* is measured in seconds



Mass: A measure of a body's quantity of _____.

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

1 inch = 2.54 centimeters

1 mile = 5280 feet

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.**

KIR
Sign
GASCO

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 $\pm 5\%$ 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:

Flying Circus of Physics

The current world-record motorcycle jump is 77.0 m, set by Jason Reni his take-off speed.

Number Units ▼

Link to the tolerance is +/-5%

Hint

This answer has no units
° (degrees)
m
kg
s
m/s
m/s^2
N
J
...

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:

7.2×10^6 is written in WileyPlus as: **7.2E6** and

1.8×10^{-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).