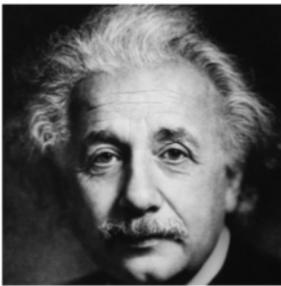


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**Unit Conversions**

SI Prefixes		
Multiple	Prefix	Symbol
$10^{15}$	peta	P
$10^{12}$	tera	T
$10^9$	giga	G
$10^6$	mega	M
$10^3$	kilo	k
$10^2$	hecto	h
10	deka	da
$10^{-1}$	deci	d
$10^{-2}$	centi	c
$10^{-3}$	milli	m
$10^{-6}$	micro	$\mu$
$10^{-9}$	nano	n
$10^{-12}$	pico	p
$10^{-15}$	femto	f

When calculating, units will need to be converted to the base form. During laboratory exercises measurements will be made in centimeters and converted to meters. The prefixes table contains common conversions used in physics use the table and sample problem to make the following conversions.

Show a factor label method (FLM) table for each problem.  
**If you need additional assistance with the FLM, google unit conversions with the factor label method.**

The notation relates to the base value  $1\text{cm} = 1 \times 10^{-2}\text{m}$ , this is the conversion factor. First centimeters cancel because they are on the top and bottom. Then you multiply  $50 \times (1 \times 10^{-2}) = 0.50\text{m}$

1. Convert 50cm to meters.

$$50\text{cm} \times \frac{1 \times 10^{-2} \text{ m}}{1\text{cm}} = 0.50\text{m}$$

2. Convert 125cm to meters. Show the factor label methods table.

3. Convert 88MHz to Hz. Show the factor label method table.

4. Convert 550 nm to meters. Show the FLM table.

5) Convert 7km to meters. Show the FLM table

6) Convert 5kJ to joules. Show the FLM table.

7) Convert 3k $\Omega$  to Ohms ( $\Omega$ ).

**Additional common conversion for kinematics.**

1 meter = 3.28 ft	3ft = 1 yard	5,280 ft = 1mi	1hr = 3600s
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8) Determine the amount of meters in 3 miles.

9) Determine the amount of seconds in 8 minutes.

10) Determine the number of feet in 3 kilometers.

## Graphical Review

The following data was collected from an object moving along a flat horizontal surface, such as a ball moving on the street.

**If you need additional guidance to complete the graphs below use the following website;**

**<http://www.physicsclassroom.com/class/1DKin/Lesson-3/The-Meaning-of-Shape-for-a-p-t-Graph>**

1) Data table (1) provides per second the position of the ball as it moves along the street. Use the table to complete a position vs. time graph in the grid that is provided.

**Graphs should always have labeled the x-axis, y-axis, and the title. Labeling should include the variable and the unit used. The time will always be represented on the x-axis.**

Table 1

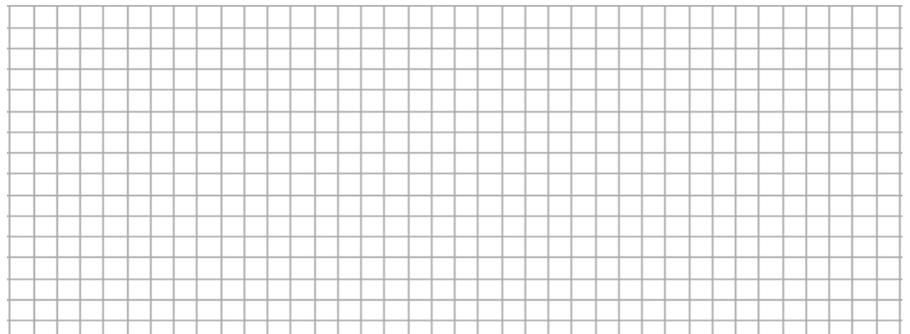
Time (s)	Position (m)
0	0
1	5
2	5
3	5
4	5
5	5



2) Data table (2) provides per second the position of the ball as it moves along the street. Use the table to complete a position vs. time graph in the grid that is provided.

Table 2

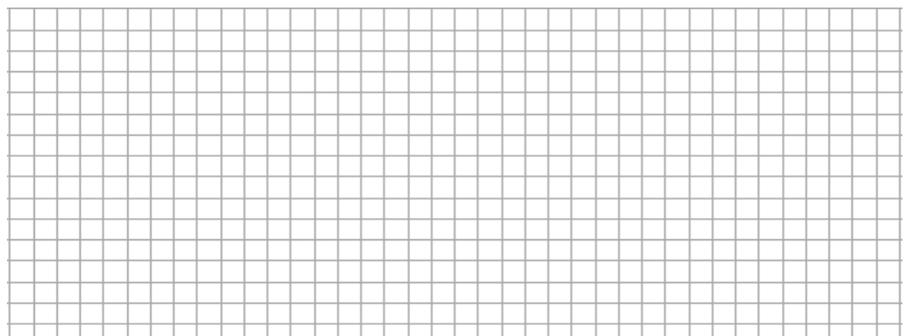
Time (s)	Position (m)
0	0
1	5
2	10
3	15
4	20
5	25



3) Data table (3) provides per second the position of the ball as it moves along the street. Use the table to complete a position vs. time graph in the grid that is provided.

Table 3

Time (s)	Position (m)
0	0
1	2.5
2	10
3	22.5
4	40
5	62.5

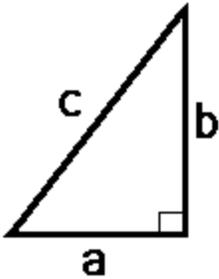


**Vector Addition & the Pythagorean Theorem**

If you need additional guidance to complete the problems below use the following website;

Vector Addition Help: <http://www.physicsclassroom.com/class/vectors/Lesson-1/Vector-Addition>

1)



2) The table above corresponds with the diagram above. Use the right triangle and apply the numbers in the table to solve for the missing side. Provide evidence on how you determined c.

Trial	a	b	c
1	3	4	
2	6	9	
3	10	15	
4	3	12	

A **three variable equation** is a common mathematical set up for content in AP physics 1.

**$y = mx.$**

The y, m, and x will have different meanings for different content.

3) Given the two variables of the equation solve for the missing one and show your work.

Trial	y	m	x
1		6	5
2	30		10
3	30	2	

4) Describe how each of the variables in the table changes for the different trials.

Use the following website to assist you with common terminology for the first 3 units of study in AP physics 1. Click on mechanics to start your search. Shaded boxes will not be relevant.

<http://hyperphysics.phy-astr.gsu.edu/hbase/hframe.html>

Common Terminology for Beginning Units				
Symbol	Terminology	Definition	Units	* Primary Equation
	Kinematics			
	Scalar Quantity			
	Vector Quantity			
	Position			
	Distance			
	Displacement			
	Speed			
	Velocity			
	Acceleration			
	Newton's 1 <sup>st</sup> Law of Motion (N1L)			
	Newton's 2 <sup>nd</sup> Law of Motion (N2L)			
	Newton's 3 <sup>rd</sup> Law of Motion (N3L)			
	Mass			
	Force of Weight			
	Force of Friction			
	Normal Force			
	Applied Force			

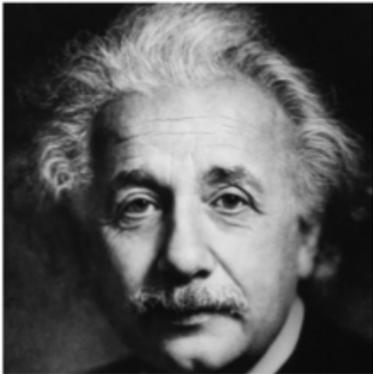
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AP Physics 1

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