



Weekly Sheet for MS1/HS1a STEM/PHYSICS

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Week #5, Week of Mon(9/26) to Mon (10/3)



Topics/Content/Skills: Vectors/ How things Move/Measuring velocity

Skills:

- Identify and calculate the components of a vector.
- Identify a velocity and Acceleration graph from a Displacement vs Time graph.
- Solve 1 and 2 step algebra problems for trig.
- Can convert to and from Scientific notation.
- Can convert between 1 level of units. (ex. from cm to Meters)
- Understand What Kinematics means, and knows the basic equations of kinematics.
- Understands that Projectile motion has 2 types of motion going on.

Vocabulary/Key Terms/Formulas:

Vectors, components,

Homework/Classwork: (All homework is due the next class day unless indicated.)

	<u>In Class</u>	<u>Homework Due in this Class</u>
<u>Monday</u> <u>9/26</u>	<u>Phet Labs-</u> <u>Estimation game, Finish Moving Man</u>	HM Mastery Sheet #9
<u>Tuesday</u>	<u>Component of vectors</u>	Get Quizzes Signed!!! Finish Estimation Lab
<u>Wednesday</u>	<u>Review for Quiz #2</u> <u>If time Vector lab</u>	Finish Moving man lab, HM Mastery Sheet #10
<u>Thursday</u>	<u>Quiz</u>	HM Mastery Sheet #11
<u>Friday</u>	<u>No Class on Fridays</u>	<u>NA</u>
<u>Monday</u> <u>10/3</u>	<u>More Lab Practice</u> <u>Khan if time</u>	HM Mastery Sheet #12

Tests/Due Dates: There will be a 45 min TEST on Thurs. Sept 29, 2011.

Quiz- Test Topics: Density, Perimeter/Circumference, Area (rectangles, circles), volume (rectangular prisms, Spheres) , Scientific notation, Vectors & components, Pugging into equations, 1-2 Step Algebra problems, STEM Review, Extra ordinary Review, Graphs of DVAJ, Basic Trigonometry.

Special Events/News:

6th -10th graders are expected to take the PSAT's and consequently we are having some extra help sessions during academic club time as well as Saturdays 10:00am to 12:30pm Lunch will be provided.






Extraordinaries/Mastery Review Topics:

Summations, 15%, DVAJ, Trigonometry,

Name/ Grade: _____ / Date: _____

Homework Sheet #10

1. A car with an oil leak is moving left to right. Match the oil drop pattern with the motion word that most closely describes it.

I. Rest	a.	
II. Deceleration	b.	
III. constant velocity	c.	
IV. acceleration, then deceleration	d.	
V. acceleration	e.	

2. A force F_1 pushes on an object of mass 5 kg with a force of 100 N to the right. A force F_2 pushes on the same object with a force of 150 N to the left.

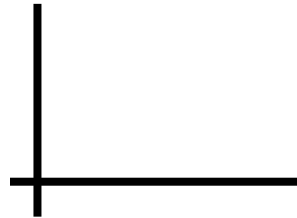
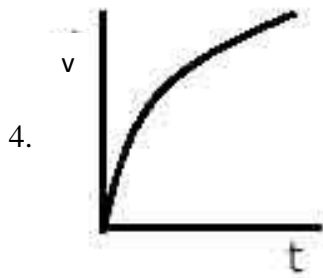
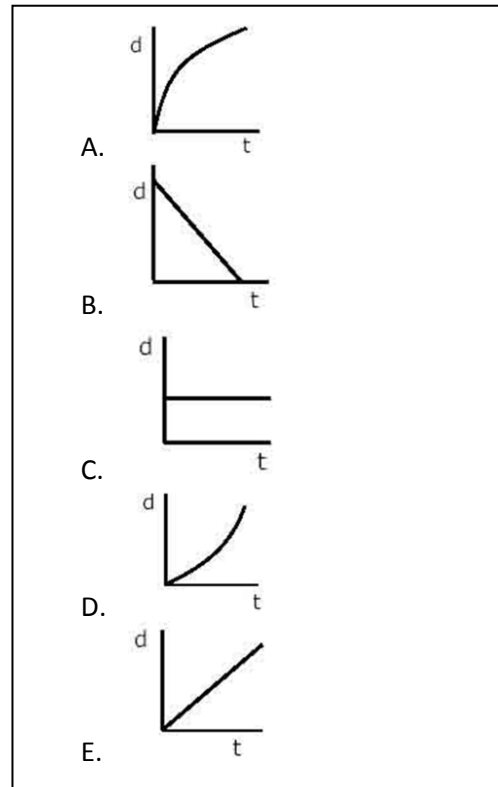
a. What is the net force on the object? _____

b. What is the acceleration of the object? (Choose from below)

- (A) 0.3 m/s² to the left
- (B) 0.5 m/s² to the left
- (C) 1 m/s² to the left
- (D) 1.5 m/s² to the left
- (E) 10 m/s² to the left

3. Match the distance vs time graph with the motion phrase that most closely

- I. An object at rest
- II. constant positive velocity
- III. increasing velocity
- IV. decreasing velocity
- V. constant negative velocity

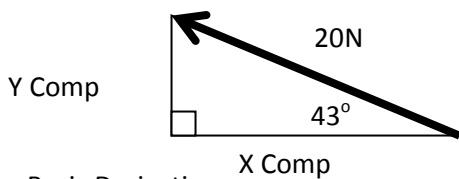


For this Graph of v vs t. Draw the acceleration vs time graph.

5. Fermi: Estimate how many times have you have opened a door? Show work for Credit and give answer to the nearest order of magnitude (power of 10).

Physics Review Questions of the Week

6.

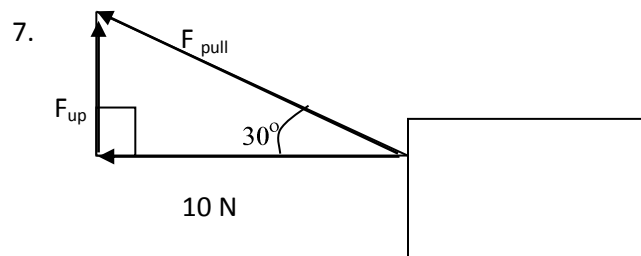


- c. What is the x component of the 20 N vector
? _____
- d. What is the y component of the 20 N vector
? _____

Basic Derivatives:

1. $D = 2t^3$
 - a. $V =$ _____
 - b. $A =$ _____
 - c. What is A if t = 4 seconds? _____
2. $V = 50t^9$
 - a. $A =$ _____
 - b. $D =$ _____ (be careful)

Basic Trigonometry: Level: _____



- a. What trig function would you use to solve for F_{up} ?

Cos θ Sin θ Tan θ

(Circle one)

- b. What is F_{up} ?
- c. What is F_{pull} ?
- d. If the box does not move off of the ground, What is the weight of the box?
- e. What is the normal?

Name/ Grade: _____ / Date: _____

Homework Sheet #11

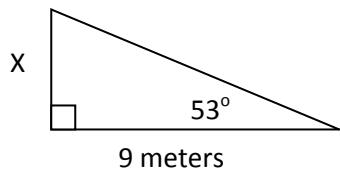
Do these as fast as you can...(if not under 90 seconds- for most) then Mastery isn't quite there....Check time before you start..

X	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1																
2																
3								□							□	
4																
5																
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7				□			□									
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15											□			□		
16															□	

17. Did you finish these in under 2 minutes? _____

Physics Review Questions of the Week

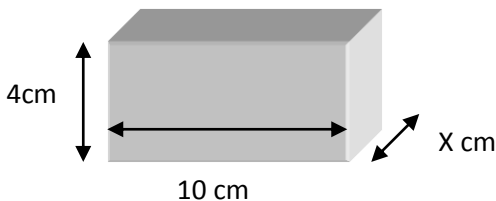
1.



a. Which trig function would you use? Sin Cos Tan
 b. Explain why you pick that one _____

c. **NOT Bonus:** X is the height of the flagpole, how tall is the flag (solve for x)?

2. a.

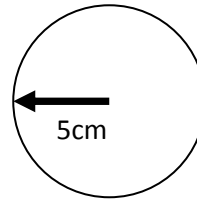


Mass = _____ **gms**
 Volume = 200cc x= _____
 Density = 3gm/cc

Circumference of a Circle = $2 \pi r$

Area of a Circle = πr^2

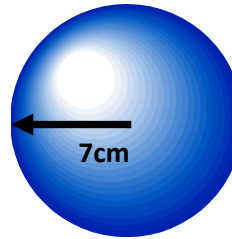
Volume of a Sphere = $\frac{4}{3}\pi r^3$



Radius of this circle is 3 cm.

Circumference = _____

AREA = _____



Radius of this sphere is 2cm

Volume = _____

3. a. 15% of 8642 = _____

b. 15% of 7000 = _____

c. d = _____ v = $3t^5$ a = _____ j = _____

1. Fermi: Estimate how many homework assignments have you ever had? Show work and give answer to the nearest order of magnitude (power of 10).

Name/ Grade: _____ / Date: _____

Homework Sheet #12

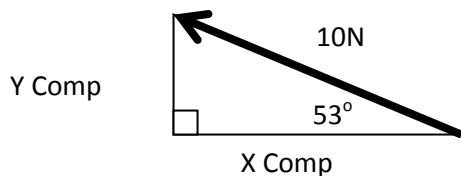
Do these as fast as you can...(if not under 90 seconds- for most) then Mastery isn't quite there....Check time before you start..

X	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1																
2																
3								□							□	
4								□							□	
5																
6														□		
7				□			□									
8								□				□				
9									□							
10										□						
11											□			□		
12					□				□			□				
13													□			
14														□		
15				□							□				□	
16																□

17. Did you finish these in under 2 minutes? _____

Physics Review Questions of the Week

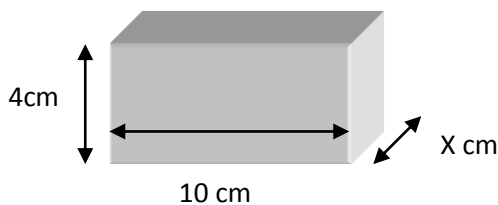
2.



- a. What is the x component of the 10 N vector
? _____
- b. What is the y component of the 10 N vector
? _____

c. **NOT Bonus:** X is the height of the flagpole, how tall is the flag (solve for x)?

2. a.

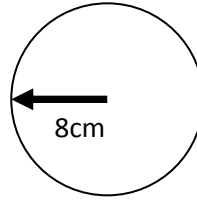


- Mass = _____ **gms**
- Volume = _300cc_ x= _____
- Density = __5gm/cc_____

Circumference of a Circle = $2 \pi r$

Area of a Circle = πr^2

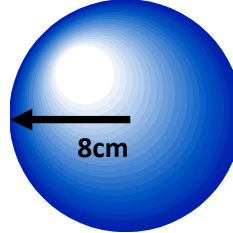
Volume of a Sphere = $\frac{4}{3}\pi r^3$



Radius of this circle is 7 cm.

Circumference = _____

AREA = _____



Radius of this sphere is 7cm

Volume = _____

3. a. 15% of 8042= _____

b. 15% of 6040 = _____

c. d= _____ v= $18t^9$ a= _____ j= _____

2. Fermi: Estimate how many homework assignments have you ever had? Show work and give answer to the nearest order of magnitude (power of 10).