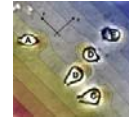


Physics 131- Fundamentals of Physics for Biologists I

Professor: Wolfgang Losert wlosert@umd.edu

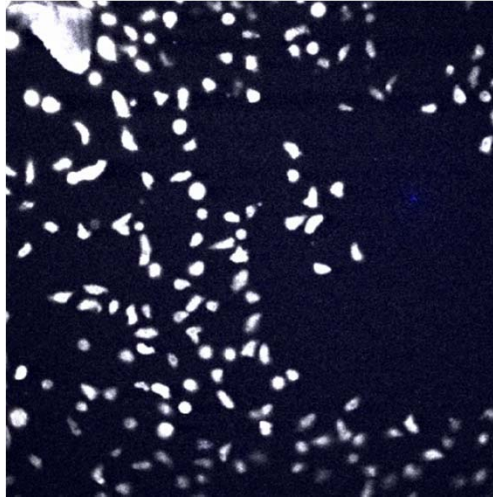


9/26/2012

-How can we describe motion (Kinematics)

- What is responsible for motion (Dynamics)

Movie of the Day
Chemically guided motion



■ Quiz 3 review

■ NEW office hours

– 5pm-6.30pm Thursday

■ Exam next week Fri

– See “Course Mechanics” website and “Grading” website for more info

– Read over HW – do Sample problems that will be posted Fri -> solutions posted on Wednesday

– Explain your reasoning in regrade requests

– Opportunity for Makeup – two grades are averaged

■ Forces

– Gravitational Force

– Spring force

– Normal force

– Friction force

Outline

1	2.1 (3 objects)	(two way interactions)	(all 3 sled interactions)	2.2	2.3
C	Y	Y	N	C	B
C	Y	Y	Y	B	A
C	Y	Y	N	B	D
E	N	N	N	C	B
E	N	N	N	A	D
E	Y	Y	Y	C	B
E	N	Y	N	C	B
C	Y	N	N	C	B
C	Y	N	N	B	D

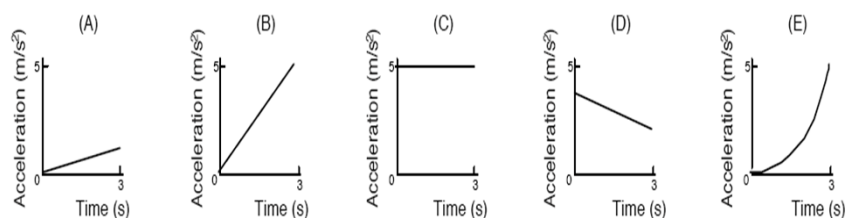
Average 4.7

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1. (3 pts) Five objects move according to the following acceleration versus time graphs. Which has the largest change in velocity during the three-second interval?



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System schema

- +1 for at least three objects (including the sled)--common objects included sled, trapper, earth, ice/lake, and boots.
- +1 for showing that all interactions are two-way interactions (double-headed arrows or separate arrows in each direction between objects).
- +1 for showing all three sled interactions (tension/rope with the trapper, gravity with the earth/ice/lake, and some kind of contact (normal, friction) with the earth/ice/lake).
-
- the rope may be its own object, as may the hand or boots of the trapper; and
- the sled-ice interaction could be one arrow (for all contact) or two arrows (one for the normal force contact and one for the frictional contact).
- KEY: System schema has to be consistent, focus on the object of interest

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Weight Force W

- Experiment: See how it behaves when gravity is the only force acting on it. We expect it to speed up (accelerate). How does that acceleration depend on the object?

$$\vec{a}_A = \frac{\vec{W}_{E \rightarrow A}}{m_A}$$

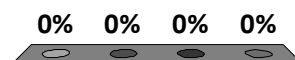
9/19/12

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The prof drops two metal spheres, one of 1 kg, the other of 5 kg. They hit the ground at (almost) exactly the same time. The weight force on the 5 kg weight is:

1. Greater than the force on the 1 kg weight
2. Less than the force on the 1 kg weight
3. The same as the force on the 1 kg weight.
4. There is not enough information to tell.



Greater than the force on...

Less than the force on th...

The same as the force on...

There is not enough inf...

9/19/12

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