

Introduction

“One of the biggest problems is how to state the problem. It’s an old saying that the minute you can state a problem correctly you understand 90 percent of the problem.”

-- John A. Wheeler (physicist)

CBC Newsworld is here

Try not to let them disturb you

Questions From You Via Guoying

- Physics Questions only (and fashion statements?)
 - Questions on “Administrivia”
 - Answer probably on the course home page, or
 - Ask Dr. Savaria before class, or
 - Ask me after class, or
 - Ask Dr. Savaria or Ms. Seeley in MP129
- I will try to “triage” and determine which questions are of general interest
- In the last 5 minutes of class: I will save the question for next class

Reminder

- We end promptly at 12 noon
- If you leave early you are disturbing your classmates
 - So don’t!
- If you are being disturbed by a classmate, tell them

Last Time

- “Displacement” and “Distance”
- “Velocity” and “Speed”
- Acceleration
- Motion Diagrams redux
- Problem Solving
 - Example: physicist and mathematician drive to Barrie
- Units and Significant Figures

The Syllabus has slipped. I will attempt to get it back on track over the next couple of classes

Today

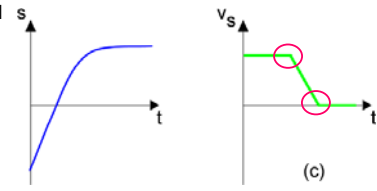
- Motion in One Dimension
 - Instantaneous and average velocity and acceleration
 - Uniform Motion
 - Non-uniform motion
 - Constant Acceleration
- Brief Review of Vectors from Chapter 3
- Perhaps begin Chapter 4: Newton’s 1st and 2nd Laws of Motion

Problem Solving

1. Model
2. Visualise
3. **Guess**
4. Solve
5. Assess

Stop To Think 2.2

- The right-hand graph is supposed to be the correct answer
- It implies that the speed changes instantaneously and discontinuously twice



Assumptions of Classical Physics

- The world is mechanistic, a “clockwork”
- It is describable by *Laws*
- The *Laws* are mathematical
- The world is continuous

Figure 2.29

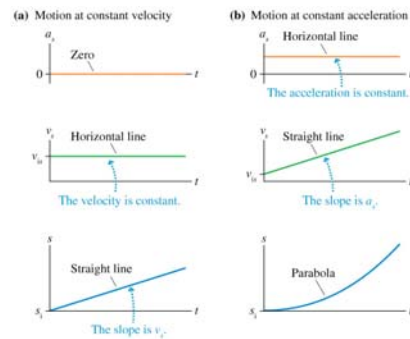
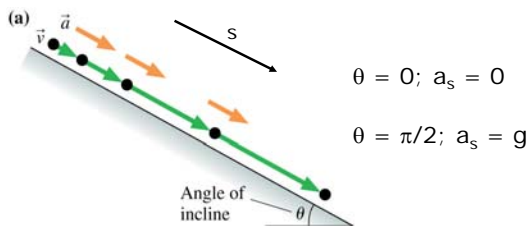


Figure 2.36 (a)



Vectors

- Specified by magnitude & direction
- Also specified by Cartesian components: A_x, A_y, A_z
- Addition:
 - Commutative
 - Associative
 - Add Cartesian components
- Unit vectors:

$$\vec{A} = A_x \hat{i} + A_y \hat{j} + A_z \hat{k}$$