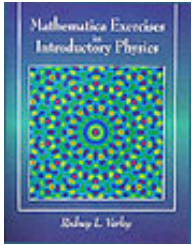




Department of Physics and Astronomy


Physics 11

Mathematica Exercises for Introductory Physics  **V1.0:**



What is Mathematica Exercises in Introductory Physics or MEIP?

"Mathematica Exercises in Introductory Physics" or MEIP consists of 24 chapters or modules in introductory computational physics suitable as a supplement for the first course in physics at college or high school. Each module has 5-10 pages of text including a brief introduction (or review as the case may be) to the physics discussed in the module. Simple numerical methods are discussed together with a few programs and typical graphical and numerical results. The remainder of each module is a series of exercises the reader is advised to complete since they are generally an important part of the book. More details on MEIP are given in the Introduction to MEIP.



~~NOTE ON MEIP VERSIONS: The programs in MEIP version version 3.0 run on Mathematica 3.0 and 4.0 The modules of MEIP version 4.0 represent a significant pedagogic upgrade and there are numerous changes in the text.~~ 

How to Read the MEIP Modules

All the files (except for this file) on the MEIP HomePage are Mathematica notebooks. Mathematica notebooks are files created with the software Mathematica and to read these notebooks you must have on your home computer

~~1. a web browser (e.g. Netscape, America On Line, Internet Explorer etc.)~~

~~AND~~

~~2. either MathReader (free) or Mathematica (\$140).~~  

Mathematica is installed on the computers at Hunter College in ICIT and if you are a student at Hunter College, then you can receive Mathematica FREE for your home computer as a result of the Student Computer Fee. Please Contact Instructional Computing and Information Technology for details.

~~How to get MathReader or Mathematica if you are NOT a Hunter College student:~~

~~1. MathReader is a "read only" version of Mathematica that is free and can be downloaded from Wolfram Research at~~

~~<http://www.wolfram.com/products/mathreader/>~~

~~MathReader will allow to you READ the notebooks on this webpage but you will NOT be able to do the calculations~~

~~yourself.~~

~~2. Mathematica may be purchased from Wolfram Research at~~

~~<http://www.wolfram.com/products/>~~

~~The student version currently (Jan. 2003) costs \$120 and you need to prove you are a student. Mathematica will allow you to do the calculations in these notebooks yourself.~~

~~How to configure your web browser:~~

~~Once you have Mathematica (or MathReader) on your PC, you will need to CONFIGURE (or setup) your web browser to use Mathematica. After you have configured your web browser, you will be able to click on one of the notebooks of this page and the notebook will automatically download to your computer and Mathematica will automatically start up so you can immediately read and use the notebook.~~

~~CONFIGURING your computer is not hard and can be learned at the site (that follows) that is appropriate for you. (If you are using Mathematica instead of MathReader, substitute Mathematica everywhere you see MathReader in the instructions below.)~~

~~1. Learn how to configure Netscape (or AOL) for Macintosh at~~

~~<http://www.wolfram.com/products/mathreader/macnetscape.html>~~

~~2. Learn how to configure Netscape (or AOL) for Windows at~~

~~<http://www.wolfram.com/products/mathreader/winnetscape.html>~~

~~3. Learn how to configure Internet Explorer for Macintosh at~~

~~<http://www.wolfram.com/products/mathreader/macexplorer.html>~~

~~4. Learn how to configure Internet Explorer for Windows at
<http://www.wolfram.com/products/mathreader/winexplorer.html>~~

~~Alternatively, the notebooks on this web page can be downloaded to your Personal Computer using FTP (File Transfer Protocol) software (e.g. Fetch on the Macintosh) and opened provided you have the Mathematica (or MathReader) software on your computer.~~

0. Introduction to MEIP.nb	10. Driven Harmonic Osc.nb	
1. Intro. to Mathematica.nb	11. The Pendulum.nb	
2. Slope and Derivative.nb	12. Planetary Motion.nb	
3. Constant Velocity Motion.nb		
4. Gravitational fall of mass.nb		
5. Projectile motion.nb		
6. Air Resistance.nb		
7. Area and the Integral.nb		
8. Collisions.nb		
9. Motion of Mass on a Spring		