

PHYS 328

NOTES FOR THE FIRST HOUR EXAM

The first hour exam will be given in the normal classroom on Thursday, 11 October. You have will 60 minutes to complete the test. The exam will be closed book, closed notes; calculators or other electronic devices will neither be needed nor allowed. The exam will cover everything we will have completed through the close of lecture on Oct. 4, which I hope will include Section 3.3 of the text, but I will make a clear indication by the end of class on the 4 th how much material will be on the test.

You will be given a sheet of useful formulae and results, so you will not need to memorize any equations. However, you will need to know when and how the equations apply. For instance, I will list several forms of the Stirling approximation, such as :

$$N! = N^N e^{-N} \sqrt{2\pi N}$$

$$\ln N! = N \ln N - N$$

but you will need to know under which conditions you may use each form.

A significant percentage of the exam will involve deriving equations and relationships starting from the basic equations of the course : the first law of thermodynamics, the ideal gas law, the equipartition theorem, and the definition of PV work. You will not need to do any explicit calculations, but there may be problems in which I ask you to set up the equations, which when evaluated, will yield a certain result, something like "derive an expression, which when evaluated, will determine the probability of being dealt a royal flush in a game of 5 card poker".

There will be no Mathematica based questions on this exam.