CHAPTER OVERVIEW

1: The Scientific Method and Physics

Learning Objectives

- Understand the Scientific Method.
- Define the scope of Physics.
- Understand the difference between theory and model.
- Have a sense of how a physicist thinks.

This textbook will introduce the theories from Classical Physics, which were mostly established and tested between the seventeenth and nineteenth centuries. We will take it as given that readers of this textbook are not likely to perform experiments that challenge those well-established theories. The main challenge will be, given a theory, to define a model that describes a particular situation, and then to test that model. This introductory physics course is thus focused on thinking of "doing physics" as the task of correctly modeling a situation.

Prelude

A scientific theory...

A. must explain the physical world, and it may or may not be experimentally verifiable.
B. proves our models to be correct, and it must be experimentally verifiable.
C. describes the physical world, and must be experimentally verifiable.
D. must disprove other theories, and may or may not be experimentally verifiable.