PHY2048 Examination 01

Cumulative Lecture

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1. Introduction

The objective of this experiment was to determine the spring constant (k) for a single spring system using Hooke's Law. The spring system used most closely resembled an extension spring and was measured prior to adding varying masses. The displacements were measured using a wooden ruler. After the commencement of the experiment, the force (F) was plotted against the extension (x), and the slope of the resulting linear graph provided the spring constant for the single spring with various masses added.

In this experiment, we take on the role of an engineering design team in which a toy company must ensure that the maximum force supplied by a spring mechanism inside a toy gun does not exceed 20 N for safety reasons. The spring constant (k) obtained, if accurate, represents how the spring will behave when placed under increased load, thereby ensuring safe and reliable use in other mechanical systems.