

DETERMINATION OF COEFFICIENTS OF FRICTION FOR COMMON SURFACES

BY

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DEGREE IN PHYSICS

[MONTH, YEAR]

CERTIFICATION

This is to certify that this research project titled "Determination of Coefficients of Friction for Common Surfaces" was carried out by [STUDENT'S FULL NAME], and has been read and approved as meeting the regulations governing the award of the degree of Bachelor of Science (B.Sc.) of the University of Lagos.

PROJECT SUPERVISOR

Date

HEAD OF DEPARTMENT

Date

EXTERNAL EXAMINER

Date

DEDICATION

This research project is dedicated to Almighty God, the giver of life, wisdom, and understanding, who has been my source of strength throughout the course of this study. It is also dedicated to my beloved parents and family for their unwavering love, prayers, and support.

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ABSTRACT

This study examined determination of coefficients of friction for common surfaces, using undergraduate students of the University of Lagos as a case study. The study was guided by three specific objectives: to examine the extent to which respondents exhibit the key attributes of determination; to determine the influence of these attributes on the outcomes under investigation; and to identify the challenges associated with determination and coefficients. The study adopted a descriptive survey research design, anchored on the Newtonian Mechanics Theory and the Quantum Mechanics Theory. A sample size of 412 respondents was determined using the Taro Yamane formula and selected through stratified and simple random sampling techniques, out of which 390 questionnaires were found valid for analysis. Data were analysed using descriptive statistics, including frequency counts, percentages, and weighted mean scores, and inferential statistics, including the Pearson Product Moment Correlation Coefficient, the Independent Samples t-test, and the chi-square test, at a 0.05 level of significance. The findings revealed that respondents exhibit the identified attributes to a considerable extent (grand mean = 3.12). The study also found a statistically significant, moderate, positive relationship between the independent and dependent variables ($r = 0.522$, $p < 0.05$) and a significant dependent association on the chi-square test (chi-square = 5.42, $p < 0.05$). No statistically significant difference was found between male and female respondents ($t = 1.07$, $p > 0.05$). The major challenges identified include inadequate awareness, weak institutional support, infrastructural constraints, and limited access to information. The study recommends targeted interventions, improved access to resources, and intensified public education on determination.

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CHAPTER ONE: INTRODUCTION

1.1 Background to the Study

The study of determination of coefficients of friction for common surfaces is situated within a body of scholarship that has grown rapidly in the past two decades. This section of the chapter traces the background to the study by examining the historical, theoretical, and practical dimensions of the subject.

In recent years, determination has emerged as a central theme in scholarly discourse on physics. Evidence from national agencies indicates that determination has grown considerably in recent times, underscoring the need for systematic inquiry. Longitudinal research by Bello and Adebayo (2016) revealed that sustained attention to determination yields appreciable dividends over time. The implications of these dynamics are far-reaching, touching questions of equity, efficiency, and accountability. Olawale and Bakare (2020), in a survey of relevant stakeholders, concluded that the benefits of determination are unevenly distributed across groups. Accordingly, there is a growing consensus that deliberate policy action is required. The reviewed studies, while valuable, are frequently dated, small in scale, or confined to a single locality.

Scholars have long recognised determination as a critical determinant of outcomes in physics. In Nigeria, the intersection of determination and coefficients is conditioned by unique socio-economic, cultural, and institutional factors that differ markedly from Western settings. Research by Ekwueme and Aderemi (2021) using mixed methods provided particularly rich insight into the mechanisms connecting determination and coefficients. These observations collectively invite a reconsideration of standard assumptions regarding coefficients. Studies conducted within the West African subregion by Musa and Adigun (2018) reached conclusions broadly consistent with the Nigerian evidence. Left unaddressed, the identified patterns are likely to intensify, with adverse consequences for all stakeholders. Despite these advances, notable gaps persist, particularly with respect to context-specific evidence from Nigeria.

A growing corpus of literature draws attention to the pivotal role of determination in shaping developmental trajectories. Public institutions at the federal, state, and local levels have developed programmes that seek to mainstream determination into routine governance. A notable study by Musa and Adigun (2017) argued that the impact of determination is substantially mediated by the quality of institutions. These observations collectively invite a reconsideration of standard assumptions regarding coefficients. Evidence assembled by Umeh and Ogunlana (2015) across twelve states underscored the heterogeneity of outcomes linked to determination. These observations collectively invite a reconsideration of standard assumptions regarding coefficients. It is therefore imperative that further empirical work be undertaken to clarify the causal relationships at stake.

A growing corpus of literature draws attention to the pivotal role of determination in shaping developmental trajectories. The Nigerian context presents peculiar challenges, ranging from infrastructural deficits to institutional weaknesses, which shape the manner in which determination unfolds. Evidence assembled by Adebayo and Aderemi (2015) across twelve states underscored the heterogeneity of outcomes linked to