



basic education

Department
Basic Education
REPUBLIC OF SOUTH AFRICA

FULL MEMORANDUM GRADE 12 PHYSICS 2022 FINAL

This question paper consists of 18 pages and 3 data sheets.

(QUESTION 5 (Start on a new page.)

A 12 kg block is initially at rest at point A at the bottom of a ROUGH inclined plane. The block is pulled up the incline by a constant force F acting parallel to the incline. The block reaches point B, which is at a vertical height of 4.0 m above the horizontal, with a speed of 3.00 m/s. See the diagram below.



- Define the term non-conservative force.
- Draw a labelled free-body diagram for the block when it is pulled up the incline.
- Calculate the total work done on the block by the NON-CONSERVATIVE forces when the block moves from point A to point B. (5)

The same constant force F now moves the block at a CONSTANT VELOCITY across a rough horizontal surface from point B to point C, as shown below. Force F acts parallel to the horizontal surface.



The magnitude of the constant frictional force acting on the block while moving from point B to point C is 40 N, 40% of the magnitude of the constant frictional force acting on the block when it moves from point A to point B.

- Calculate the distance from point A to point B. (5)

(10)

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Maths Handbook & Study Guide Grade 12: Teacher's Guide and Answer Book Kevin Smith, 2014-01-01 Guidelines for teachers and worked through solutions to all the exercises in the Grade 12 Textbook Guidelines for teachers and worked through solutions to all the exercises in the Grade 12 Textbook **Teaching and Learning Secondary School**

Mathematics Ann Kajander, Jennifer Holm, Egan J Chernoff, 2018-10-24 This volume brings together recent research and commentary in secondary school mathematics from a breadth of contemporary Canadian and International researchers and educators It is both representative of mathematics education generally as well as unique to the particular geography and culture of Canada The chapters address topics of broad applicability such as technology in learning mathematics recent interest in social justice contexts in the learning of mathematics as well as Indigenous education The voices of classroom practitioners the group ultimately responsible for implementing this new vision of mathematics teaching and learning are not forgotten Each section includes a chapter written by a classroom teacher making this volume unique in its approach We have much to learn from one another and this volume takes the stance that the development of a united vision supported by both research and professional dialog provides the first step **Research for Educational Change** Jill Adler, Anna

Sfard, 2016-06-17 Research for Educational Change presents ways in which educational research can fulfil its commitments to educational practice Focussing its discussion within the context of mathematics education it argues that while research generated insights can have beneficial effects on learning and teaching the question of how these effects are to be generated and sustained is far from evident The question of how to turn research into educational improvement is discussed here in the context of learning and teaching hindered by poverty and social injustice In the first part of the book four teams of researchers use different methodologies while analysing the same corpus of data collected in a South African mathematics classroom In the second part each of these teams makes a specific proposal about what can be done and how so that its research generated insights have a tangible beneficial impact on what is happening in mathematical classrooms Combining two discourses that of researchers speaking to one another and that of researchers communicating their insights to those responsible for educational practice the book deals with the perennial question of communication between those who study educational processes and those who are directly responsible for teacher education educational research and classroom practices This book will be key reading for postgraduates researchers and academics in education and particularly in the areas of mathematics education education research teacher education and classroom practice It will also appeal to teacher educators practitioners and undergraduate students interested in educational research **The Times Index**, 2013-06

Indexes the Times Sunday times and magazine Times literary supplement Times educational supplement Time educational supplement Scotland and the Times higher education supplement Teaching Mathematics Creatively Linda Pound, Trisha Lee, 2021-09-30 This revised and updated third edition offers a range of strategies activities and ideas to bring mathematics

to life in the primary classroom Taking an innovative and playful approach to maths teaching this book promotes creativity as a key element of practice and offers ideas to help your students develop knowledge understanding and enjoyment of the subject In the creative classroom mathematics becomes a tool to build confidence develop problem solving skills and motivate children The fresh approaches explored in this book include a range of activities such as storytelling music and construction elevating maths learning beyond subject knowledge itself to enable students to see mathematics in a new way Key chapters of this book explore Learning maths outdoors make more noise make more mess or work on a larger scale Everyday maths making sense of the numbers patterns shapes and measures children see around them Music and maths the role of rhythm in learning and music and pattern in maths Stimulating accessible and underpinned by the latest research and theory this is essential reading for trainee and practising teachers who wish to embed creative approaches to maths teaching in their classroom

Human Resource Management, 11th Edition Raymond J. Stone, Anne Cox, Mihajla Gavin, Joseph Carpini, 2024-06-04 The new edition of Raymond Stone's Human Resource Management is an AHRI endorsed title that has evolved into a modern relevant and practical resource for first year HRM students This concise 15 chapter textbook gives your students the best chance of transitioning successfully into their future profession by giving them relatable professional insights and encouragement to exercise their skills in authentic workplace scenarios

The Armed Forces Covenant in action? Great Britain: Parliament: House of Commons: Defence Committee, 2013-07-18 A series of Ofsted inspections on Army Apprenticeships conducted in 2013 rated the overall effectiveness as good This was an improvement over the last inspection in 2009 rated as satisfactory now called requires improvement Some 28 per cent of Army recruits were less than 18 years of age Further information is needed on why the Army is so dependent on recruiting personnel under the age of 18 years compared to the other two Services and whether steps are being taken to reduce this dependency Of those recruited in 2012 35 per cent of the Army were rated at entry level 2 for literacy that of a 7 to 8 year old and 39 per cent had a literacy level of an eleven year old If as the MoD states it has to recruit personnel at whatever level of attainment is available then it should boost remedial action when recruitment entry standards are particularly low In light of changes brought about by Future Force 2020 it may be that recruiting personnel with higher levels of attainment would better meet the future needs of the Armed Forces Whilst the Committee recognises that some recruits may not be eager to take further academic exams the MoD should encourage more recruits to undertake English and Maths GCSEs which would stand them in good stead for future employment The MoD has carried out some useful pilot projects with paramedic training and should identify more potential projects to ensure that vital skills paid for by the MoD are not lost to the country

Diagnosis of Breast Cancer Using Support Vector Machine DR. SYED HAUIDER ABBAS, DR. KRISHNA PRASAD K, 2024-05-28 First and foremost we express our deepest gratitude to God Throughout the process of compiling this book we have come to appreciate the profound impact of the gift of writing which has empowered us to pursue our dreams and believe in our passions Without

divine trust and guidance this accomplishment would not have been possible We extend our sincere thanks to all those involved in this project especially the authors and reviewers whose contributions were instrumental in bringing this book to fruition Their support has been invaluable and we are grateful for their dedication and expertise We also thank God for granting us the opportunity to delve into this highly relevant subject matter at this time and we acknowledge the collective efforts of each author for their invaluable contributions Special appreciation goes to all the chapter authors who generously shared their time and expertise Additionally we acknowledge the valuable feedback provided by the peer reviewers whose suggestions greatly enhanced the quality coherence and content of the chapters We are especially grateful to those authors who served as referees dedicating their time and effort to ensure the integrity of this work DR SYED HAUIDER ABBAS DR KRISHNA PRASAD K

The Influence of Teacher-Student Relationships and Feedback on Students' Engagement with Learning Roger Wood, 2018-06-11 This book presents a potential hierarchy between the three basic psychological needs central to Self Determination Theory SDT Findings from the author's research suggest that the motivation to exercise autonomy is an outcome that is cumulatively influenced by the perceived quality of the teacher student relationship and students perceived competence within specific learning contexts and with a specific teacher These findings are the basis for three hypotheses regarding students motivation to engage with learning activities The first is that perceived competence is informed by and reciprocally informs the quality of the teacher student relationship The second is that students perceived competence and the quality of the teacher student relationship have a combined impact upon students autonomous motivation The final point is that a teacher can be autonomy supportive both prior to and during activities where students have opportunities to exercise their autonomy Such autonomy support includes the influence of teacher feedback upon students perceived competence and their subsequent motivation to autonomously engage with learning activities This research begins to unravel such motivational interplay through an SDT informed model which is used as the basis for discussing the specific influence of teacher feedback and autonomy support upon students engagement with learning activities in formal learning settings The findings and model are worthy of further testing and development as part of the wider agenda of student engagement wellbeing and positive psychology prevalent in educational research education psychology and the philosophy of social motivation

Common Core Mathematics Standards and Implementing Digital Technologies Polly, Drew, 2013-05-31 Standards in the American education system are traditionally handled on a state by state basis which can differ significantly from one region of the country to the next Recently initiatives proposed at the federal level have attempted to bridge this gap Common Core Mathematics Standards and Implementing Digital Technologies provides a critical discussion of educational standards in mathematics and how communication technologies can support the implementation of common practices across state lines Leaders in the fields of mathematics education and educational technology will find an examination of the Common Core State Standards in Mathematics through concrete

examples current research and best practices for teaching all students regardless of grade level or regional location This book is part of the Advances in Educational Technologies and Instructional Design series collection **Commonwealth Universities Yearbook** T. Craig, Hugh W. Springer, 1979 *The Continuing Study of Newspaper Reading* Advertising Research Foundation, 1942 *Journal of Psychology in Africa* , 2009 **Who's who in American Education** , 1992

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