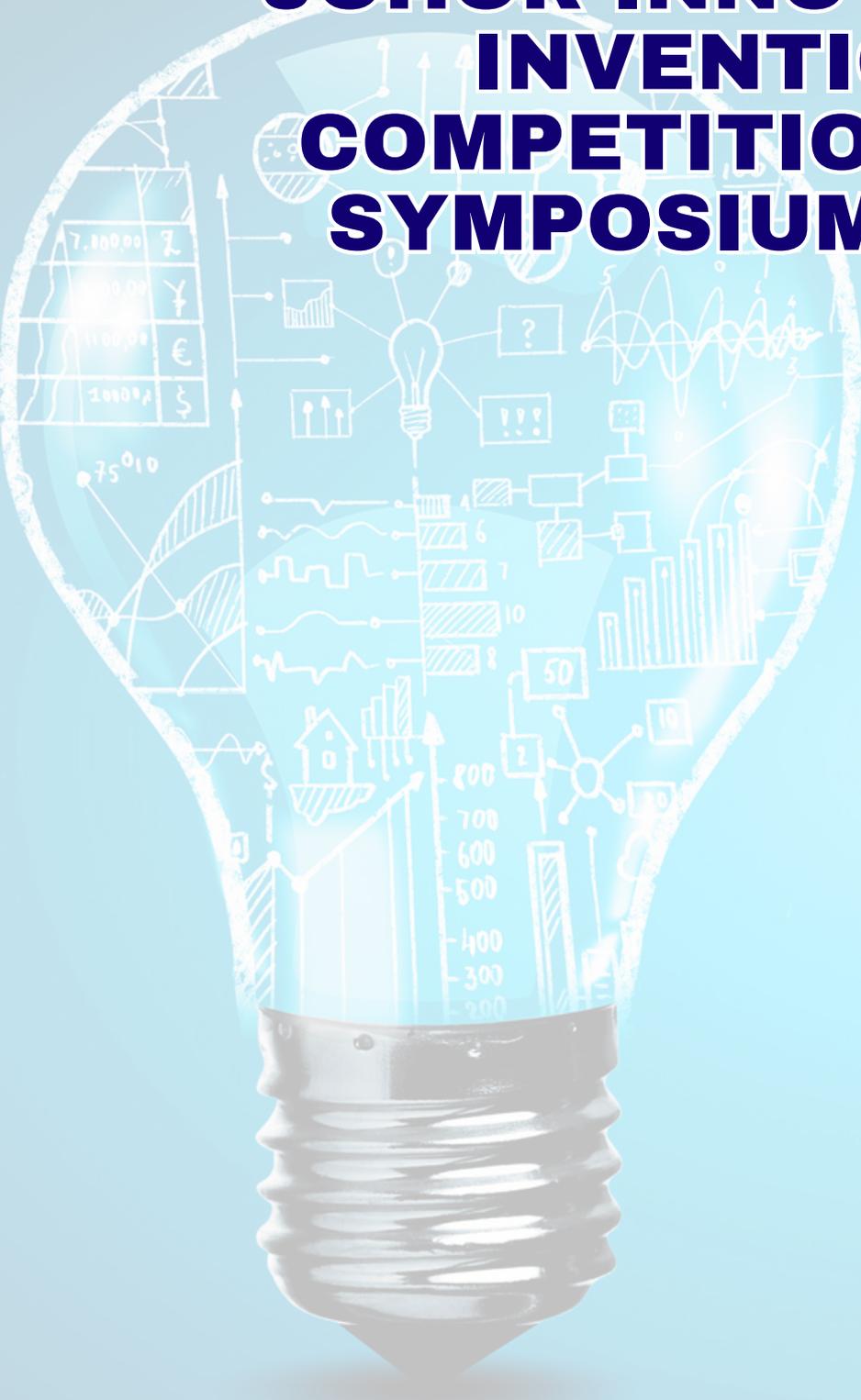


JOHOR INNOVATION INVENTION COMPETITION AND SYMPOSIUM 2023



JOHOR INNOVATION INVENTION COMPETITION AND SYMPOSIUM 2023

" Innovation Inspires a Society to be
Critical and Creative"

Editors-in-Chief

**AHMAD KHUDZAIRI KHALID
NUR INTAN SYAFINAZ AHMAD**



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Preface

In the name of Allah, the Almighty who gives us the enlightenment, the truth, the knowledge and with regards to Prophet Muhammad (peace be upon him) for guiding us to the straight path. We thank to Allah for giving us guidance and strength to write this e-book.

This e-book compiles the extended abstracts that submitted to Johor Innovation Invention Competition and Symposium 2023 (JIICaS2023), where JIICaS2023 is a virtual platform for all creative minds to share and present their invention and innovation. The extended abstracts are divided into two categories, which are Category A (Higher Educational Student/ Any Recognized Institutional Students in Malaysia) and Category B (Primary/ Secondary School Students / Special Education School Students in Johor). Each abstract gives a brief background on the innovation or project.

We hope that this e-book will help the readers to get to know the innovation done by the students from both categories and get some ideas to develop future innovation products.



BUSINESS MATHEMATICAL MARVEL

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ABSTRACT

Mathematics is often regarded as a difficult subject, and due to that, students find it difficult to learn mathematics, which affects their motivation to learn mathematics because of a lack of understanding in the classroom due to limited time for in-depth discussion and individualized attention for each student. They also have insufficient communication with lecturers, which may limit activities like discussion and exchanging ideas among students. Additionally, they don't have much of a chance to present solutions in the class. Hence, this project aims to create a fun way of learning mathematics as well as boost motivations for learning the subject matter among business students by creating an interactive video that focuses on the analysis of a few questions in annuity, trade, and cash discount. This video can be stopped or replayed and enables students to organize their thoughts and responses effectively. Moreover, creating the video can enhance confidence and self-esteem in analyzing the solutions since they can be presented without fear of judgement. In conclusion, this video will enhance critical thinking and creativity, addressing students' struggles with mathematics. By promoting communication, self-esteem, and personal development, it helps students overcome problem-solving challenges and promotes effective learning.

Keywords: Business Mathematics, Interactive Video, Learning, Motivation, Problem solving.

1.0 INTRODUCTION

Due to its crucial role in the Fourth Industrial Revolution, mathematics is one of the core topics that contributes to employment in science, technology, engineering, and mathematics (STEM). Due to this, this subject has been added to the curriculum from elementary school through the university level, and the majority of students take mathematics, however, this is not limited to only those who are studying in the STEM fields. Since it requires both problem-solving abilities and a desire to understand the material, not all students prefer this subject.

According to Rozgonjuk, Kraav, Mikkor, Orav-Puurand, and Taht (2020), there has recently been an uptrend in interest in learning mathematics, and a significant amount of literature has developed around this subject. However, Koca (2016) defined motivation to learn as acquiring the skill through constant modeling, feedback on expectations, and explicit instruction to help us comprehend it better. This description is comparable to that given by Middleton and Perks (2014), who state that a learner must be committed to learning in order to develop techniques to facilitate it.

The importance of mathematics in the advancement of science and technology is supported by the Malaysia Education Blueprint (2013–2025). On the other hand, the results of the Blueprint study supported the notion that there was a connection between students' success in the mathematics class and their degree of confidence. However, the problem arises

since most student regard Mathematics as a difficult subject. This attitude leads to lack of motivation among students as well as lack of understanding in Mathematics.

2.0 OBJECTIVES

Hence, the aims of this project are to provide a fun learning mathematics' technique in order to boost students' motivation, interest, confidence, and communication skills in presenting mathematics solutions. Additionally, this project can help the students understand the particular topics in depth. On the other hand, it also provides a platform to present the solutions.

3.0 DESCRIPTION OF PRODUCT

A fun learning video in Figure 1 was recorded, which provided a platform for the students to explain their works and present their understanding. Additionally, this video learning can be a reference for other students who face difficulties in understanding the way to solve this topic. The full version of the video can be found in <https://youtu.be/gyZpjiD8oUo?si=htMaeF6VLZciGhQQ>.

This video can be stopped or replayed and enables students to organize their thoughts and responses effectively. Moreover, creating the video can enhance confidence and self-esteem in analyzing the solutions since they can be presented without fear of judgement.

QUESTION 1

The cash price of a lorry is RM80,000. RR Trading bought the lorry through an installment plan of 12 1/2 years and the interest rate charged was 8% compounded monthly.

SOLUTION

A: 80,000
 t: 12 1/2
 K: 8% : 0.08
 m: 12
 i: 0.08/12
 n: 12(12 1/2): 150
 $A: R \frac{[1 - (1+i)^{-n}]}{i}$

a) Find the equal monthly payment

$$80,000: R \frac{[1 - (1 + 0.08/12)^{-150}]}{(0.08/12)}$$

$$R: \frac{80,000}{94.63465335}$$

$$R$$

Figure 1: Fun learning video presentation

4.0 NOVELTY

This product provides a fun video learning which focus on Annuity, Trade Discount and Cash Discount problems. Innovation of Business Mathematical Marvel supports SDG 4 : Quality Education.

5.0 CONCLUSION

Finally, this video will improve critical thinking and creativity while addressing young people difficulties with maths. It assists students in overcoming problem-solving obstacles and fosters successful learning by boosting communication, self-esteem, and personal growth.

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