

## PANEL COMMUNICATION (RECREATIONAL MATHEMATICS)

### Recreational Mathematics with Digital Tools

AMÉIA CALDEIRA<sup>a</sup>, HELENA BRÁS<sup>b</sup>, ALZIRA FERIA<sup>c</sup>, ISABEL FIGUEIREDO<sup>d</sup>, ISABEL PINTO<sup>e</sup>, ALEXANDRA GAVINA<sup>f</sup>, ANA JÚLIA VIAMONTE<sup>g</sup>

<sup>a</sup> ISEP, Polytechnic of Porto, R. Dr. António Bernardino de Almeida, 4249-015 Porto, Portugal, LEMA, SYSTEC  
acd@isep.ipp.pt

<sup>b</sup> ISEP, Polytechnic of Porto, R. Dr. António Bernardino de Almeida, 4249-015 Porto, Portugal, LEMA  
aff@isep.ipp.pt

<sup>c</sup> ISEP, Polytechnic of Porto, R. Dr. António Bernardino de Almeida, 4249-015 Porto, Portugal, LEMA  
hbs@isep.ipp.pt

<sup>d</sup> ISEP, Polytechnic of Porto, R. Dr. António Bernardino de Almeida, 4249-015 Porto, Portugal, LEMA  
ipf@isep.ipp.pt

<sup>e</sup> ISEP, Polytechnic of Porto, R. Dr. António Bernardino de Almeida, 4249-015 Porto, Portugal, LEMA  
alg@isep.ipp.pt

<sup>f</sup> ISEP, Polytechnic of Porto, R. Dr. António Bernardino de Almeida, 4249-015 Porto, Portugal, LEMA  
irm@isep.ipp.pt

<sup>g</sup> ISEP, Polytechnic of Porto, R. Dr. António Bernardino de Almeida, 4249-015 Porto, Portugal, LEMA  
ajv@isep.ipp.pt

### Abstract

Throughout history, many cultures around the world have invented recreational problems that have caught the attention of the general public, due to the simple way in which they were presented, and of mathematicians, due to their strong connection with notions of logic, topology, geometry, algebra, and others.

A simple problem can lead us to formal development, and in this sense, we can say that recreational mathematics is also a source of mathematical models.

In recent decades, recreational mathematics has assumed an important role for the dissemination and popularization of mathematics, demonstrating its importance through the

communication of historical and cultural aspects of mathematics and the exploration of its practical applications.

Digital recreational mathematics use digital tools and technology to create, explore, and illustrate mathematical concepts in a fun, rewarding and interactive way. It involves a variety of digital tools and platforms designed to develop and explore mathematical games, visualizations, challenges, and more.

Two notable tools in the domain of digital recreational mathematics are the ASYMP-TOTE and the MathCityMap (MCM) systems. Both tools transform mathematical problems into a game, to which a points system is associated, and which can be used in a competition between tool users.

ASYMPTOTE allows the creation of high-quality mathematical diagrams and illustrations, making it an excellent resource for visualizing mathematical concepts. MathCityMap is a platform that combines outdoor activities with mathematics.

We will introduce the MCM system (<https://mathcitymap.eu/en/>) and the ASYMP-TOTE system (<https://www.asymptote-project.eu/>) where technology has expanded the horizons of recreational mathematics. Both systems consist of two components, namely a web portal and a smartphone application.

MCM and Asymptote, allow us to broaden the horizons of recreational mathematics, making it more accessible and engaging. By integrating technology and mathematics, we are preparing a new generation of critical thinkers and innovators.

## References

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