



# MathE e matemática no ensino superior: possíveis abordagens

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Julho de 2019

# Introdução

- Colaboração entre várias instituições europeias
- Público-alvo – ensino superior
  - Professores
  - Alunos
- **Melhorar competências em matemática no ensino superior**
- Plataforma *online*: <https://mathe.pixel-online.org/>
  - Disponibilização para a comunidade de diversos recursos educativos
    - Conjuntos de questões de escolha múltipla
      - Autoavaliação por parte dos alunos
      - Realização de testes de avaliação
    - Vídeos sobre temas específicos ou sobre resolução de tarefas

# Plataforma MathE

The screenshot shows the homepage of the MathE Platform. At the top, there is a navigation bar with the MathE logo and several menu items: Home, Student's Assessment, MathE Library, Community of Practice, Partnership, Information & Contacts, and Project Management. Below the navigation bar, there are two main content areas. The left area features a large MathE logo and a link to 'Main information about the MathE Project'. The right area is a banner for the MathE Project, including a 'Register to MathE Platform' button, a welcome message, and a brief description of the project's funding and goals. Below these are two featured sections: 'Student's Assessment' with a 'Self Need Assessment' description and a photo of a student, and 'MathE Library' with a 'Coming Soon' message and an image of books and a laptop.

https://mathe.pixel-online.org/index.php

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Home Student's Assessment MathE Library Community of Practice Partnership Information & Contacts Project Management

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Main information about the MathE Project

Register to MathE Platform

Welcome to  
**MathE Project**  
To Improve Math Skills in Higher Education

The MathE project is funded by the European Commission through the Portuguese National Agency for the Erasmus+ Programme with the aim of enhancing the quality of teaching and improving pedagogies and assessment methods.

Student's Assessment


**Self Need Assessment**  
This toolkit allows students to carry out a self-evaluation of their knowledge on selected Math topics

MathE Library

Coming Soon

# Plataforma MathE – Registo

Browser address bar: [https://mathe.pixel-online.org/MP\\_signIn.php](https://mathe.pixel-online.org/MP_signIn.php)



- Home
- Student's Assessment
- MathE Library
- Community of Practice
- Partnership
- Information & Contacts
- Project Management

## Sign Up To MathE Platform

Homepage > MathE Platform > Sign up



Registration Page

Thanks for deciding to joining th MathE Community. By registering to the portal you will be able to:

- to carry out a self-evaluation of your knowledge on selected Math topics.
- if your university officially joined the community, to participate in the final evaluations of your teacher

Name	<input type="text"/>	Surname	<input type="text"/>
Email	<input type="text"/>	Email Confirmation	<input type="text"/>
Password	<input type="text"/>		

Please specify if you are a:

STUDENT     LECTURER

**Confirmation of registration**  
Hereby I confirm that I would like to register on the project portal of the Erasmus- project MathE.

# Plataforma MathE – Autoavaliação



## Self Need Assessment

Homepage > Student's Assessment > Self Need Assessment



This toolkit allows students to carry out a self-evaluation of their knowledge on 10 selected Math topics.

Here you can perform a self-assessment evaluation about diverse math topics.  
To make a self-assessment test you need to login:



If you do not have username and password, please [register](#) to the portal.

You can do a self-assessment on the following math topics/subtopics:

- » **Analytic Geometry**
- » **Complex Numbers**
- » **Differential Equations**
- » **Differentiation**
  - » *Derivatives*
  - » *Partial differentiation*

# Plataforma MathE – Autoavaliação

The screenshot displays the MathE platform interface. At the top left is the 'ma the' logo. A navigation bar contains icons for 'Community of Practice', 'Partnership', 'Information & Contacts', and 'Project Management'. The main content area features a 'Self Need' section with a description: 'This toolkit allows students to carry out a self-evaluation of their knowledge on 10 selected Math topics.' Below this is a photo of a student. A dropdown menu is open, listing 14 math topics with the number of questions in parentheses: Analytic Geometry (30), Complex Numbers (33), Differential Equations (16), Differentiation (20), Fundamental Mathematics (54), Graph Theory (34), Integration (75), Linear Algebra (151), Optimization (13), Probability (30), Real Functions of a single variable (1), Real Functions of several variables (4), and Statistics (40). Below the dropdown is a 'Level' section with radio buttons for 'Basic' (selected) and 'Advanced'. A green 'START ASSESSMENT' button is at the bottom. A message box says 'Por favor seleccione um item na lista.' and another text box says 'ment please select the topic and the level. ckets indicate the number of available questions.'

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Community of Practice Partnership Information & Contacts Project Management

## Self Need

Homepage > Student's Assessment

**Self Need Assessment**  
This toolkit allows knowledge on 10

**Final Assessment**  
This toolkit provides their students an



This toolkit allows students to carry out a self-evaluation of their knowledge on 10 selected Math topics.

Select Topic

- Analytic Geometry (30)
- Complex Numbers (33)
- Differential Equations (16)
- Differentiation (20)
- Fundamental Mathematics (54)
- Graph Theory (34)
- Integration (75)
- Linear Algebra (151)
- Optimization (13)
- Probability (30)
- Real Functions of a single variable (1)
- Real Functions of several variables (4)
- Statistics (40)

Select Topic

\* Level

Basic  Advanced

Por favor seleccione um item na lista.

ment please select the topic and the level.  
ckets indicate the number of available questions.

**START ASSESSMENT**

# Plataforma MathE – Autoavaliação



Home



Student's  
Assessment



MathE  
Library



Community  
of Practice



Partnership



Information &  
Contacts



Project  
Management

## Self Need Assessment

Homepage • Student's Assessment • Self Need Assessment



This toolkit allows students to carry out a self-evaluation of their knowledge on 10 selected Math topics.

To start the assessment please select the topic and the level.  
The numbers between brackets indicate the number of available questions.

\* Topic

Fundamental Mathematics (54)

Elementary Geometry (44)

All Subtopics

Elementary Geometry (44)

Manipulation of algebraic expressions (10)

\* Level



Basic



Advanced

START ASSESSMENT

# Plataforma MathE – Autoavaliação



This toolkit allows students to carry out a self-evaluation of their knowledge on 10 selected Math topics.

## Question 3

Topic: Fundamental Mathematics  
Subtopic: Elementary Geometry  
Level: Basic

Which set of numbers stand for the lengths of the sides of a triangle?

Choose the right answer or skip to the next question.

Answer 1:

{1, 3, 7}

Answer 2:

{2, 4, 8}

Answer 3:

{3, 3, 6}

Answer 4:

{2, 4, 5}

SKIP

CONFIRM



# Plataforma MathE – Autoavaliação

## Self Need Assessment

Homepage » Student's Assessment » Self Need Assessment



This toolkit allows students to carry out a self-evaluation of their knowledge on 10 selected Math topics.

### Question 7

Topic: Fundamental Mathematics  
Subtopic: Elementary Geometry  
Level: Basic

The sum of the number of faces with the number of vertices of a solid is 17. Choose the correct answer.

Choose the right answer or skip to the next question.

Answer 1:

The solid is a pentagonal prism.

Answer 2:

The solid is a hexagonal prism.

Answer 3:

The solid is a pentagonal pyramid.

Answer 4:

The solid is a hexagonal pyramid.

SKIP

CONFIRM

# Plataforma MathE – Autoavaliação



This toolkit allows students to carry out a self-evaluation of their knowledge on 10 selected Math topics.

Topic: Fundamental Mathematics  
Subtopic: Elementary Geometry  
Level: Basic



The number of correct answers is 1 on a total number of 7 questions.  
Your performance is not good and it would be advisable to go back to the theory.

## Question 1

Choose the value that corresponds to the sum of the amplitudes of the internal angles of an octagon.

Your answer is CORRECT:



1080

## Question 2

Choose the correct statement.

Your answer is WRONG:



The sum of the external angles of any convex polygon is  $(n - 2) \times 180^\circ$ , where  $n$  is the number of sides of the polygon.

# Potencialidades – Aluno

- Acesso a uma fonte fidedigna de informação
- Possibilidade de aprendizagem a distância
- Estudo autónomo
  - Motivação
  - *Feedback* imediato
  - Rever assuntos que não tenham compreendido nas aulas
- Alunos que chegam mais tarde – Orientação e apoio
  - Acesso a recursos que versam sobre os temas já lecionados
  - Testar os conhecimentos relativos a tópicos já abordados nas aulas
- Aspeto formativo
  - Identificação de dificuldades (aula/casa)
  - Conceitos que precisam de clarificar com o professor

# Potencialidades – Professor

- Partilha de recursos com os pares
- Guiar os alunos no estudo
  - Facilidade na recomendação de recursos
- Apoio para algumas estratégias a desenvolver
  - Aula invertida
  - Visualização e análise orientada de vídeos
  - Trabalho em grupo e debate em grande grupo
    - Resolução de questões da plataforma (pequeno grupo)
      - Identificação das respostas erradas – autocorreção
    - Debate das resoluções com a turma
  - Alunos a trabalhar em temas diferentes (na mesma aula)
- Aspectos avaliativos
  - Testes *online* para avaliação sumativa
  - Teste de verificação de conhecimentos
    - Pedir como complemento as resoluções dos alunos

# Desvantagens

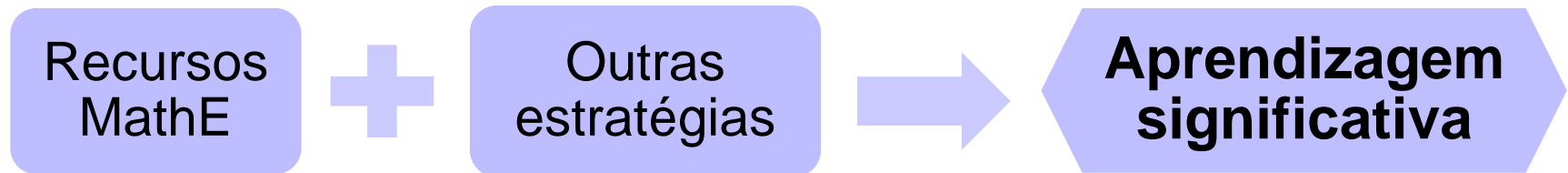
## ■ Questões

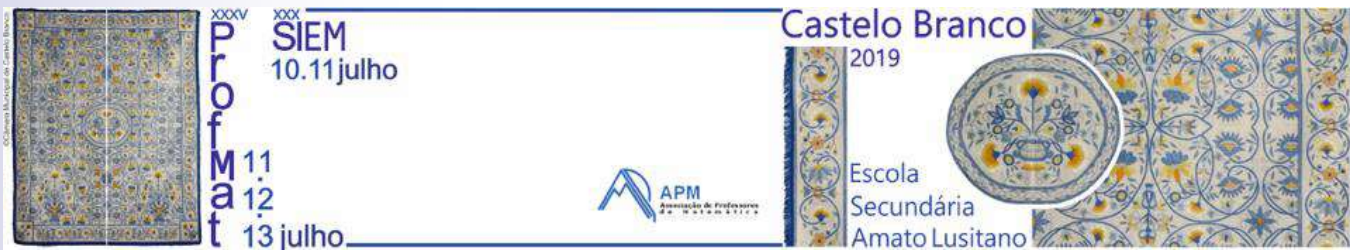
- Os alunos responderem “à sorte”
- Os alunos acertarem na resposta pelas “razões erradas”
- Não ter acesso às resoluções dos alunos
  - Não permite perceber o seu raciocínio
  - Dificulta a identificação dos processos que levam a raciocínios que não são válidos
- Idioma – Inglês

# Conclusões

## Plataforma MathE

Fonte de recursos vantajosa para o processo de ensino e aprendizagem, quando combinada com outras estratégias





# Obrigada pela atenção.

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