Recommended Advanced Math Assessment Platforms

1. Numbas

- **Overview**: An open-source platform developed by Newcastle University, tailored for mathematical assessments.

- **Key Features**:

  - Supports complex math question types, including algebraic expressions and randomized variables.

  - Provides automatic grading with detailed feedback.

  - Offers seamless integration with Learning Management Systems (LMS) via SCORM or LTI.

- **Ideal For**: Creating adaptive math assessments to evaluate student readiness for AI-focused programs.

- **Website**: numbas.org.uknumbas.org.ukstack-assessment.org

2. STACK

- **Overview**: An open-source system designed for mathematics and STEM assessments, compatible with Moodle and other LMS platforms.

- **Key Features**:

  - Allows students to input algebraic answers, which are graded based on mathematical properties.

  - Supports complex question types and provides immediate feedback.

- **Ideal For**: Assessing higher-level mathematical reasoning and proof-based questions.

- **Website**: stack-assessment.orgstack-assessment.org

3. ALEKS

- **Overview**: An AI-driven assessment platform that identifies a student's knowledge state and adapts accordingly.

- **Key Features**:

    - Utilizes adaptive questioning to determine student proficiency.

    - Provides personalized learning paths based on assessment results.

- **Ideal For**: Determining appropriate placement in math courses and identifying students ready for advanced topics.

- **Website**: aleks.comOregonNews+1Assessment Systems+1ZuAI

4. Testportal

- **Overview**: A versatile online assessment tool suitable for various subjects, including mathematics.

- **Key Features**:

    - Offers AI-generated question capabilities.

    - Provides detailed reporting and analytics.

    - Ensures secure and scalable test delivery.

- **Ideal For**: Administering standardized assessments to a global student base.

- **Website**: testportal.netTestportalClassMarker

5. ClassMarker

- **Overview**: A professional online testing platform that supports a wide range of question types.

- **Key Features**:

    - Allows for timed tests with randomized questions.

- ○ Provides instant grading and feedback.

- ○ Ensures data security and compliance with privacy standards.

- **Ideal For**: Creating and distributing secure math assessments globally.

- **Website**: classmarker.comClassMarkernumbas.org.uk

🧭 Strategic Recommendations

For the AI Immersion program, I suggest the following approach:

1. **Initial Assessment**:

   - ○ Utilize **Numbas** or **STACK** to create a comprehensive math assessment focusing on probability and combinatorics.

   - ○ Design the test to include varying difficulty levels to accurately gauge student proficiency.

2. **Adaptive Learning Paths**:

   - ○ Implement **ALEKS** to provide personalized learning trajectories based on assessment outcomes, ensuring students are placed in courses matching their skill levels.

3. **Global Deployment**:

   - ○ Use **Testportal** or **ClassMarker** to administer assessments to a worldwide student audience, leveraging their robust delivery and analytics capabilities.

📊 Implementation Plan

- **Week 1**:

   - ○ Develop assessment content using Numbas or STACK.

- ○ Configure ALEKS for adaptive learning integration.

- **Week 2**:

  - ○ Pilot the assessment with a small group to ensure functionality and clarity.

  - ○ Gather feedback and make necessary adjustments.

- **Week 3**:

  - ○ Deploy the assessment globally using Testportal or ClassMarker.

  - ○ Monitor results and analytics to identify top-performing students.

- **Week 4**:

  - ○ Analyze data to select the top 10% of students based on math proficiency.

  - ○ Enroll these students in the AI Immersion program and provide access to advanced coursework.

By implementing this structured approach, we can effectively assess and identify students with strong mathematical capabilities, ensuring they are well-prepared for the challenges of the AI Immersion program.