Kognity

Assessment Prep with Kognity
IBDP Maths

What is this guide for?

This guide is designed to help you make the most out of Kognity as a tool to prepare students for success both in formative assessments and IBDP exam preparation.

How does Kognity help with assessment preparation for IBDP Maths?

According to John Hattie, Professor of Education and Director of the Melbourne Educational Research Institute at the University of Melbourne, Australia, feedback is an important driver for improving teaching and learning. Formative assessments play a large role in consistent feedback throughout the year as students prepare for their IBDP exams. Kognity provides efficient tools for immediate feedback to both the student and teacher.

> "
> **"Think of feedback as received, not given."**
>
> John Hattie >

For students:

Students can test their problem solving, interpretation and analysis skills in Maths through completing worked examples and receiving immediate feedback on their responses. In addition, at the end of each section, students can complete section questions that are auto-graded, allowing them to receive feedback right away on their progress.

For teachers:

Teachers get immediate feedback on their students' progress through the Textbook and Questions data, located on the Insights page. Here, teachers can view a visual representation of student quiz and assignment scores. Teachers can then easily identify those students who need help, which makes intervention fast and efficient.

Below you will find some ways teachers can use Kognity's resources to successfully prepare their students for IBDP Maths assessment components. Click on each picture to explore more in Kognity Maths!

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How does Kognity help with formative assessments?

Revisions Quizzes

Kognity's question assignments can be used as revision quizzes for review at the end of a unit. Teachers can drill students on specific techniques and tools using multiple examples. All question assignments are auto-graded, so students and teachers can immediately receive the results. Teachers can then revise any common mistakes before starting to teach new content.

Exit Tickets

Exit tickets are a great type of formative assessment. At the end of class, students respond to a series of questions pertaining to the lesson to consolidate their knowledge and understanding. At the end of every Maths section are *section questions*, which teachers can set at the conclusion of the lesson. These questions are auto-graded, so both the students and the teacher get the results immediately.

How does Kognity help with formative assessments?

Notebook and Checklists

Kognity's notebook feature allows students to make their own notes and print out if necessary for consolidation. Students can use the notebook feature when they are performing self-assessment of knowledge and understanding at the end of each chapter with the checklists.

What you should know

By the end of this subtopic you should be able to:

- recognise sequence notation such as u_1, u_2, u_{n-1}, u_n, u_{n+1}
- know that u_{n-1}, u_n, u_{n+1} are three consecutive terms in a sequence
- write a recursive rule for a sequence and use the recursive rule to generate the first few terms of a sequence
- show that a sequence is arithmetic by proving that $d = u_n - u_{n-1}$ is constant for all terms of a sequence
- write a recursive rule for an arithmetic sequence by using $u_n = u_{n-1} + d$
- write an nth term or deductive rule for an arithmetic sequence by using $u_n = u_1 + (n-1)d$
- find the sum of an arithmetic sequence by using

$$S_n = \frac{n}{2}(2u_1 + (n-1)d) \text{ or } S_n = \frac{n}{2}(u_1 + u_n)$$

- identify real-world situations which follow a perfectly arithmetic progression
- apply $u_n = u_1 + (n-1)d$, $S_n = \frac{n}{2}(2u_1 + (n-1)d)$, and $S_n = \frac{n}{2}(u_1 + u_n)$ to solve real-world application questions with perfectly arithmetic progressions
- identify real-world situations which are not perfectly arithmetic but are similar enough to be modelled using arithmetic sequences
- use the mean value for d in application questions involving sequences that are not perfectly arithmetic to create a model for u_n and to approximate its values for specific values of n
- interpret sigma notation to write out and evaluate a given sum
- write an equivalent form of a sum in sigma notation.

Exam Practice Tasks

Kognity provides exam-style questions, marks schemes and model answers that teachers can use in a variety of different ways with their students. For example, teachers can go over a practice paper as a class, write the answer together, and focus on examiner comments.

Question preview

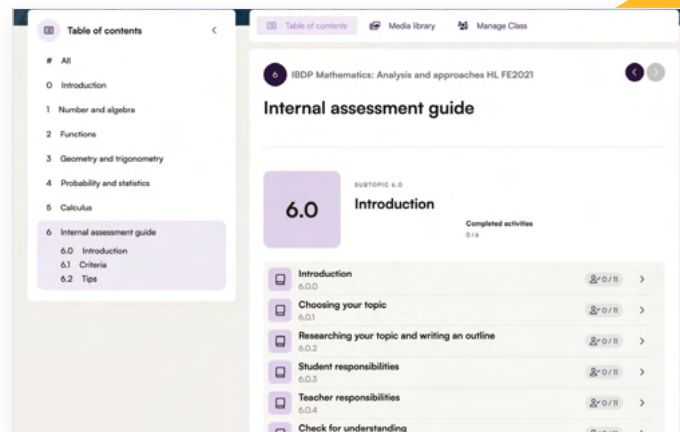2 of 230   Paper: 2 Marks: 18

Question

A group of researchers at a university are investigating the concept of 'mental warm ups' and if they can help improve cognitive performance. They take a student at random from the mathematics course and give them a randomly generated amount of time (between 10 and 60 minutes) to complete some mental warm up exercises. They then give the student a set of logic problems to solve and their score is recorded as a percentage. They do this 10 different times over the course of a month with different but equally challenging warm up exercises and logic tests. The results of this study can be seen in the following table.

How does Kognity help with IB Assessment Preparation?

Internal Assessment

To ensure success in the IA, teachers must spend time introducing and explaining the criteria and responsibilities to their students. Kognity is an excellent source of practice for the IA. The activities, geogebra manipulatives, and investigations provide a lot of practice in exploring open-ended problems and making observations about patterns. These can also be used to practice communication skills by asking students to present their findings to the class or by writing a report.

IB Exam Papers

Exam tips are written by IB examiners and provide students with an understanding of what is expected of them on their exams.

ⓘ **Exam tip**

In the exam you may be asked to show that a given sequence is arithmetic. To do this you should find the difference between each pair of consecutive terms and show that this difference is constant.

Kognity's exam-style assignments are all based on Papers 1 and 2 and contain questions, example answers and commented mark schemes that provide students tips for success that are written by examiners. Just add a timer when using an exam-style assignment to model real exam conditions!

1. Number and algebra

51 questions

Add exam-style question

Add	Sent	Question	Paper	Marks	
☐	✈	(a) Prove that $\log_2 3$ is an irrational number. [4 marks]	1	4	🔍
☐	✈	(a) Solve $\log_2 (k+2) - \log_2 (3-k) = -2$. [5 marks]	1	5	🔍
☐	✈	Let $a_1, a_2, a_3, \ldots$ be an arithmetic sequence with $a_1 = 20$, $d = -3$. (a) Find a_4, the 4th term. [2 marks] (b) Find $S_4, \ldots$	2	7	🔍