YEAR 7 | MYP-INSPIRED DIAGNOSTIC

Olympiad Mathematics

Name: _____ Date: _____

Suggested time: 55 minutes | Focus: Mathematics A-D with additional non-routine logic, proof and pattern generalisation

Instructions: Answer independently. Explain your thinking, refer to evidence and show working where appropriate. This is an unofficial diagnostic, not an IB examination.

Number investigations

1. Three consecutive positive integers have a sum of 96. Find the integers and explain why your solution is unique.

2. A two-digit number has digits that sum to 11. Reversing its digits makes the number 27 smaller. Find the original number and justify.

Counting and logical reasoning

3. How many different two-letter codes can be made using A, B, C, D without repeating a letter? Explain using a systematic method.

4. On a 3 by 3 grid of unit squares, how many squares of all sizes are there? Explain how you counted without missing any.

Proof and challenge

5. A sequence begins 2, 6, 12, 20, 30. Find the next two terms and a rule for term n. Show why the rule fits.

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6. Four friends each shake hands with every other friend exactly once. How many handshakes occur? Generalise for n friends.

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PARENT / TUTOR GUIDE

Use this guide after the student has completed the assessment. Credit sound reasoning and justified alternative responses. These are formative observations, not official MYP criterion levels.

Assessment lens

Mathematics A-D with additional non-routine logic, proof and pattern generalisation

Answers 1-3

1: 31, 32, 33. 2: 74 (tens digit 7, ones digit 4). 3: 4 × 3 = 12 ordered codes.

Answers 4-6

4: 9 small + 4 medium + 1 large = 14. 5: 42, 56; term n is n(n + 1). 6: 6 handshakes; n(n - 1)/2.

Look for

Systematic counting, explanation of uniqueness, algebraic generalisation, and a clear argument rather than guesswork.

Observation checklist

Does the student explain reasoning clearly? Can they select relevant evidence, revise a first idea and communicate a conclusion? Note specific examples rather than assigning an unsupported IB grade.

Next steps

Choose one strength and one priority for the next lesson. Ask the student to explain how they reached their answer before providing corrections.

Curriculum note

The MYP uses subject-specific criteria A-D. This independent diagnostic samples related skills; it does not fully assess all strands or replace school assessment. Year 7 is commonly MYP Year 1, but school year naming varies.

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