香 港 資 優 教 育 學 苑
The Hong Kong Academy for Gifted Education

# MATHS IGNITION – ALGEBRA (MATS1114)

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| Introduction | Maths Ignition is an introductory programme. It is designed as a series of courses of different topics and is developed as a bridging programme to the 'IMO Training' programme.<br><br>Maths Ignition – Algebra is the fourth course of the series. It aims to broaden students' knowledge in algebra on the basis of junior secondary mathematics curriculum through exploration and investigation approach. Students who have completed 2 out of 5 courses in Math Ignition series might be considered for direct admission to the "Introduction to Olympiad Mathematics 2020 (Phase I)" (MATS1151), an intermediate-level programme offered in Spring 2020 by IMO Hong Kong Committee.<br><br>This programme is co-organized with International Mathematical Olympiad Hong Kong Committee (IMOHKC) |
| Programme Type / Level | Introductory Course in Mathematical Olympiad (Token-required) |
| Instructor(s) | Mr Hui Pak Nam |
| Pre-requisites | Students should have the basic knowledge in<br>1. Basic Manipulations of Algebraic Expressions<br>2. Multiplication and Divisions of Polynomials<br>3. Basic Algebraic Identities<br>4. Expansion and Factorisation of Polynomials<br>5. Solving Systems of Linear Equations |
| Target Participants | ➢ S1 – S3 HKAGE student members<br>➢ Class size: 30<br><br>➢ All applicants **MUST** attend the **Aptitude Test** on **10 Aug 2019** except for those who have attended the Aptitude Test held on 18 May 2019, 11 Feb 2019 or 17 Nov 2018.<br><br>**Remarks: Due to the limited seats in computer rooms, students who have taken the Aptitude Test on 18 May 2019 would not be allowed to take the test on 10 Aug 2019. Their results on 18 May 2019 will be used for this programme.**<br><br>*** Not for students who have enrolled in**<br>**1. CGMO Training (Phase I) MATS1121 or**<br>**2. Introduction to Olympiad Mathematics (Phase I) MATS1151 or**<br>**3. Any phase of International Mathematics Olympiad (IMO) Training before** |
| Medium of Instruction | Cantonese with English handouts |
| Certificate | **E-Certificate** will be awarded to participants who have:<br>❖ Attended **at least 3 sessions AND**<br>❖ Satisfactory performance in the end-of-course test |
| Intended Learning Outcomes | Upon completion of the programme, participants should be able to:<br>1. Broaden their mathematical knowledge in the topic of algebra on the basis of junior secondary mathematics curriculum;<br>2. Strengthen their problem solving and higher-order thinking skills;<br>3. Learn more about the scope of International Mathematical Olympiad Training. |

## Aptitude Test

Students who wish to apply for this programme must take a general aptitude test on **10 Aug 2019 (1:30 p.m. – 3:30 p.m. or 4:00 p.m. – 6:00 p.m.).**

This general aptitude test consists of 100 multiple choice questions which covers a wide range of topics in mathematics. The purpose of the test is to figure out the applicant's knowledge in different fields of mathematics in order to choose the most suitable students for different programmes. Neither under-qualified nor over-qualified students will be admitted.

The next aptitude test is scheduled on **23 Nov 2019**. The result of an aptitude test will be valid for 1 year. If a student takes the test more than once, the latest result will prevail. The following table lists the programmes for which the results of this general aptitude test will apply:

| Programme Date | Code | Programme Name | Aptitude test valid | | | |
|---|---|---|---|---|---|---|
| | | | **17 Nov 2018** | **11 Feb 2019** | **18 May 2019** | **10 Aug 2019** |
| Sep 2019 | MATS1113 | Maths Ignition – Number Theory | √ | √ | √ | √ |
| Nov 2019 | MATS1114 | Maths Ignition - Algebra | √ | √ | √ | √ |
| Nov 2019 | MATS2940 | Introduction to Financial Mathematics | √ | √ | √ | √ |
| Feb 2020 | MATS1115 | Maths Ignition - Coordinate Geometry | | √ | √ | √ |
| Mar 2020 | MATS1121 | CGMO Training 2020 (Phase I) | | | √ | √ |
| Mar 2020 | MATS1151 | Introduction to Olympiad Mathematics 2020 (Phase I) | | | √ | √ |
| Jul 2020 | MATS1111 | Maths Ignition – Combinatorics | | | | √ |
| Aug 2020 | MATS1112 | Maths Ignition - Geometry | | | | √ |
| Aug 2020 | MATS2330 | Trigonometry | | | | √ |

**Remarks:**

1. **All aptitude tests will only be arranged on the designated dates. No make-up test will be arranged.**
2. **No Calculator is allowed.**
3. **Please bring along with your Identification Card, e.g. HKID, student ID.**
4. **Please arrive at the venue 15 minutes prior to the Aptitude Test begins.**

**If students who have selected to join the aptitude test are absent without any reasons and prior notification provided, it will result in a lower priority in joining the aptitude test next time when they apply.**

| Application Deadline | 5 Aug 2019 12:00 n.n. | Application Result Release Date | 30 Aug 2019 |
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If student members withdraw from the programme after the Application Deadline, the token will be deducted.

## Schedule

| Session | Date | Time | Venue (HKAGE) |
|---|---|---|---|
| **Aptitude Test** | **10 Aug 2019** | **1:30 p.m. – 3:30 p.m. or 4:00 p.m. – 6:00 p.m.** | **Computer Room, 1/F, Hong Kong Productivity Council** |
| 1 | 23 Nov | 2:00 p.m. – 5:00 p.m. | Room 403 |
| 2 | 30 Nov | | |
| 3 | 7 Dec | | |
| 4 | 14 Dec | | |

**Hong Kong Productivity Council: 78 Tat Chee Avenue, Kowloon, Hong Kong (MAP)**

**Remarks: For any assessment to be held in the programme, no make-up will be**

## Sample Examples for the Programme

1. Without using a calculator, find $\sqrt[3]{8030}$ correct to 3 decimal places.
2. Let *a* be a real number such that $a^2 - a - 1 = 0$. Find the value of $a^4 - a^3 + a^2 - 2a + 2016$.

## Enquiries

For enquiries, please contact us at 3940 0101 after language selection, press “1”.