

**New**

# **IB Mathematics**

**MTO Worksheet  
Curriculum Table**

**Mathematics HL/SL : Core**

**THE SPECIAL PREPARATION**

**WITH SAM'S ACADEMY**

## TABLE OF CONTENTS

### 1. STRAIGHT LINES

Core. 1.1 The equation of a straight line

Core. 1.2 Parallel and perpendicular lines

### 2. SOLVING EQUATIONS

Core. 2.1 Factored form

Core. 2.2 Quadratic equations

Core. 2.3 End behavior of polynomial graph

Core. 2.4 Solving polynomial equations using technology

Core. 2.5 Solving other equations using technology

### 3. QUADRATIC FUNCTIONS

Core. 3.1 Quadratic functions

Core. 3.2 Graphs of quadratic functions

Core. 3.3 Using the discriminant

Core. 3.4 Problem solving with quadratics

Core. 3.5 Quadratic inequalities

### 4. FUNCTIONS

Core. 4.1 Relations and functions

Core. 4.2 Function notation

Core. 4.3 Domain and range

Core. 4.4 Rational functions

Core. 4.5 Composite functions

Core. 4.6 Inverse functions

### 5. TRANSFORMATIONS OF FUNCTIONS

Core. 5.1 Translations

Core. 5.2 Stretches

Core. 5.3 Reflections

Core. 5.4 Miscellaneous transformations

Core. 5.5 The graph of  $y=1/f(x)$

## 6. SURDS AND EXPONENTS

- Core. 6.1 Scientific notation
- Core. 6.2 Exponents
- Core. 6.3 Surds and other radicals
- Core. 6.4 Laws of exponents

## 7. SEQUENCES AND SERIES

- Core. 7.1 Number sequences
- Core. 7.2 Arithmetic sequences
- Core. 7.3. Series and sigma notation
- Core. 7.4 Arithmetic series
- Core. 7.5 Geometric sequences
- Core. 7.6 Finite geometric series
- Core. 7.7 Infinite geometric series
- Core. 7.8 Growth and decay
- Core. 7.9 Financial mathematics

## 8. MEASUREMENT

- Core. 8.1 Perimeter and area formulae
- Core. 8.2 Surface area
- Core. 8.3 Volume
- Core. 8.4 Bearings

## 9. RIGHT ANGLED TRIANGLE TRIGONOMETRY

- Core. 9.1 Right angles trigonometric ratios
- Core. 9.2 The Pythagorean identity
- Core. 9.3 Radian measure
- Core. 9.4 Arc length and sector area
- Core. 9.5 The unit circle
- Core. 9.6 Multiples of  $\pi/6$  and  $\pi/4$
- Core. 9.7 Finding angles
- Core. 9.8 Inverse trigonometric ratios
- Core. 9.9 Right angles in geometric figures

## **10. NON-RIGHT ANGLED TRIANGLE TRIGONOMETRY**

Core. 10.1 The area of a triangle

Core. 10.2 The sine rule

Core. 10.3 The cosine rule

## **11. POINTS IN SPACE**

Core. 11.1 Points in space

Core. 11.2 Measurement

## **12. TRIGONOMETRIC FUNCTIONS**

Core. 12.1 Periodic behaviour

Core. 12.2 The sine and cosine functions

Core. 12.3 Basic trigonometric functions

Core. 12.4 Modelling periodic behaviour

Core. 12.5 Trigonometric equations

## **13. SETS AND VENN DIAGRAMMS**

Core. 13.1 Sets

Core. 13.2 Intersection and union

Core. 13.3 Venn diagrams

Core. 13.4 Problem solving with Venn diagrams

## **14. PROBABILITY**

Core. 14.1 Theoretical probability

Core. 14.2 The addition law of probability

Core. 14.3 Conditional probability

Core. 14.4 Independent events

Core. 14.5 Bayes' theorem

## 15. SAMPLING AND DATA

- Core. 15.1 Data collection and Errors in sampling
- Core. 15.2 Sampling methods
- Core. 15.3 Writing surveys
- Core. 15.4 Types of data
- Core. 15.5 Simple and grouped discrete data
- Core. 15.6 Continuous data

## 16. STATISTICS

- Core. 16.1 Measuring the centre of data
- Core. 16.1 Choosing the appropriate measure
- Core. 16.2 Using frequency tables & Grouped data
- Core. 16.3 Measuring the spread of data
- Core. 16.4 Box and whisker diagrams (Parallel box and whisker diagrams)
- Core. 16.5 Outliers
- Core. 16.7 Cumulative frequency graphs
- Core. 16.8 Variance and standard deviation