

MATHEMATICS

for the IB Middle Years Programme

AN INQUIRY-LED APPROACH

MYP YEAR
4 + 5
STANDARD

Contents

Introduction

1. Year 3 review

- 1.1 Numbers
- 1.2 Algebra
- 1.3 Geometry
- 1.4 Probability and statistics

2. Year 3 extension

- 2.1 Classifying numbers and properties of numbers
- 2.2 Algebra extension

3. Relationships and functions

- 3.1 Relationships
- 3.2 Functions

4. Linear functions

- 4.1 Linear functions introduction
- 4.2 Graphing linear equations
- 4.3 Graphing linear inequalities

5. Systems of equations

- 5.1 Solving systems of equations by graphing
- 5.2 Solving systems of equations by substitution
- 5.3 Solving systems of equations by elimination

6. Matrices (online only)

7. Quadratic functions and equations

- 7.1 The graphs of $y = x^2$ and $y = ax^2$
- 7.2 Intersections of parabolas and straight lines
- 7.3 The graph of a quadratic function
- 7.4 Quadratic equations

8. Similarity

- 8.1 Similar shapes
- 8.2 Similar triangles
- 8.3 Similar triangles applications

9. Congruency

- 9.1 Equality and congruency
- 9.2 Congruent line segments
- 9.3 Congruent 2D shapes

10. Coordinate geometry

- 10.1 Distance and midpoint formulae
- 10.2 Transformations in the coordinate plane
- 10.3 Tessellations

11. Circle geometry

- 11.1 Circles review
- 11.2 Angle properties of circles
- 11.3 Chord properties of circles
- 11.4 Tangent properties of circles
- 11.5 Further circle properties

12. Trigonometry

- 12.1 Labelling triangles
- 12.2 The tangent ratio
- 12.3 The sine and cosine ratios
- 12.4 Exact values of the trigonometric ratios for 30° , 45° and 60° angles
- 12.5 Angles of elevation and depression
- 12.6 Bearings

13. Inverse functions, exponentials and logarithms

- 13.1 Inverse functions
- 13.2 Exponential functions $y = a^x$
- 13.3 Logarithms and laws of logarithms
- 13.4 Logarithmic functions and equations

14. 3D geometry

- 14.1 Points, lines and planes in 3D
- 14.2 Polyhedra
- 14.3 Surface areas of prisms and cylinders
- 14.4 Surface areas of pyramids and cones
- 14.5 Surface area of a sphere
- 14.6 Volumes of prisms and cylinders
- 14.7 Volumes of cones, pyramids and spheres

15. Trigonometric equations and applications

- 15.1 Trigonometric ratios on the unit circle
- 15.2 Trigonometric relationships between acute and non-acute angles
- 15.3 The area of a triangle
- 15.4 The sine rule

16. Rational and irrational expressions and functions

- 16.1 Rational numbers and functions
- 16.2 Irrational numbers

17. Sequences and series

- 17.1 From patterns to generalisations
- 17.2 Series and sigma notation
- 17.3 Arithmetic sequences
- 17.4 Geometric sequences

18. Probability

- 18.1 Probability review
- 18.2 Combined events

19. Statistics

- 19.1 Collecting data
- 19.2 Organising and describing data
- 19.3 Representing and analysing data
- 19.4 Analysing bivariate data

20. Discrete mathematics

- 20.1 Graph theory review: graphs, subgraphs and trees
- 20.2 Weighted and directed graphs
- 20.3 Graph algorithms
- 20.4 Introduction to number theory

Answers

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