



آغا خان یونیورسٹی ایگزامینیشن بورڈ
AGA KHAN UNIVERSITY EXAMINATION BOARD

Teaching and Learning Resources for Grade IX Mathematics

Recommended Key Textbook:

Mathematics (Science Group) for Grade 9, Caravan Book House, Lahore

| Additional Recommended Resource Material | | | | |
|--|--------------------|---|-----------------------------|---|
| Topic No. | Topic Title | Reference Book | Topic in the Reference Book | Website |
| 1. | Sets and Functions | <i>New Secondary Mathematics</i> , Class VIII, Mohsin Ali | Chapter 1 | http://www.math.fsu.edu/~pkirby/mad2104/SlideShow/s1_1.pdf |
| | | <i>Mathematics</i> 10, Ilmi kitab khana | Chapter 5 | https://www.mathsisfun.com/sets/sets-introduction.html |
| | | <i>Mathematics</i> for IX and X, Sindh Text Book Board | Chapter 1 | |
| | | <i>New Additional Mathematics</i> , Ho Soo Thon and Khor Nyak Hiong | Chapter 1 | |

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| 2. | Real and Complex Number | <i>Mathematics</i> for IX, Caravan Book House | Unit 2 | http://www.mathcity.org/matrix/9th_science/unit_02 |
| | | <i>Mathematics</i> for IX and X, Sindh Text Book Board | Chapter 2 | |
| | 2.5 Binary Relation 2.6 Functions | <i>Mathematics</i> 11, Algebra and Trigonometry, Punjab Text Book Board | Chapter 1 | |
| 3. | Logarithms | <i>Mathematics</i> for IX, Caravan Book House | Unit 3 | https://www.khanacademy.org/math/algebra2/exponential-and-logarithmic-functions/introduction-to-logarithms/v/logarithms |
| | | <i>Mathematics</i> IX and X, Sindh Text Book Board | Chapter 3 | |
| | | <i>New Additional Mathematics</i> , Ho Soo Thon and Khor Nyak Hiong | Chapter 3 | http://www.purplemath.com/modules/logs.htm https://www.mathsisfun.com/algebra/logarithms.html |
| 4. | Algebraic Expression and Algebraic Formulae | <i>Mathematics</i> for IX, Caravan Book House | Unit 4 | http://www.purplemath.com/modules/index.htm |
| | | <i>Mathematics</i> IX and X, Sindh Text Book Board | Chapter 3 | http://www.themathworld.com/algebra.php |
| | | <i>New Syllabus Mathematics</i> , Book 2 (6 th edition) | Chapter 4 | |

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| 5. | Factorization | <i>Mathematics</i> for IX, Caravan Book House | Unit 5 | http://www.purplemath.com/modules/index.htm |
| | | <i>Mathematics</i> IX and X, Sindh Text Book Board | Chapter 4 | http://www.themathworld.com/math-tricks.php |
| | | <i>New Syllabus Mathematics</i> , Book 2 (6 th edition) | Chapter 3 | |
| 6. | Variation | <i>Mathematics</i> 10, Ilmi kitab khana | Unit 3 | http://www.math-only-math.com/9th-grade-math.html |
| | | <i>Mathematics</i> for X, Punjab Text Book Board | Unit 3 | http://www.themathpage.com/algebra/variation.htm |
| | | <i>New Syllabus Mathematics</i> , Book 2 (6 th edition) | Chapter 2 | |
| 7. | Matrices and Determinants | <i>Mathematics</i> for IX, Caravan Book House | Unit 1 | http://www.mathsisfun.com/algebra/matrix-introduction.html |
| | | <i>Mathematics</i> for IX, Sindh Text Book Board | Chapter 6 | http://www.sosmath.com/matrix/matrix1/matrix1.html |
| | | <i>New Additional Mathematics</i> , Ho Soo Thon and Khor Nyak Hiong | Chapter 6 | http://www.maths.surrey.ac.uk/explore/emmaspages/option1.html |

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| 8. | Practical Geometry | <i>Mathematics</i> for IX, Caravan Book House | Unit 17 | http://www.sabaq.pk/chapter-page.php?vg=punjab-math-9th&vsg=punjab-math-9th-17 |
| | | <i>Mathematics</i> for IX, Sindh Text Book Board | Chapter 9 | https://www.youtube.com/watch?v=twMHS5nSY8I https://www.youtube.com/watch?v=RX4imcpmCog |
| 9. | Congruent Triangles | <i>Mathematics</i> for IX, Caravan Book House | Unit 10 | https://www.mathsisfun.com/geometry/triangles-congruent.html |
| | | <i>New Syllabus Mathematics</i> , Book 2 (6 th edition) | Chapter 1 | https://www.khanacademy.org/math/geometry/hs-geo-congruence/hs-geo-triangle-congruence/v/finding-congruent-triangles https://www.mathsisfun.com/geometry/triangles-congruent.html |

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| 10. | Parallelogram and triangles | <i>Mathematics</i> for IX, Caravan Book House | Unit 11 | http://www.mathplanet.com/education/geometry/quadrilaterals/properties-of-parallelograms |
| | | <i>New Syllabus Mathematics</i> , Book 1 (6 th edition) | Chapter 15 | https://mathbitsnotebook.com/Geometry/SegmentsAnglesTriangles/SATSegmentsTriangles.html http://www.mathopenref.com/trianglemidsegment.html |
| 11. | Line Bisector and Angle Bisector | <i>Mathematics</i> for IX, Caravan Book House | Unit 12 | https://www.wyzant.com/resources/lessons/math/geometry/triangles/bisectors_of_triangles http://study.com/academy/practice/quiz-worksheet-perpendicular-bisector-theorem.html |
| 12. | Sides and Angles of a Triangle | <i>Mathematics</i> for IX, Caravan Book House | Unit 13 | http://www.mathopenref.com/trianglesideangle.html |
| | | <i>Mathematics</i> for X, Punjab Text Book Board | Chapter 5 | http://www.mathwarehouse.com/geometry/triangles/ |

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| 13. | Application of Ratio and Proportion in Geometrical Theorems | <i>Mathematics</i> for IX, Caravan Book House | Unit 14 | http://www.mathwarehouse.com/geometry/ http://www.virtualnerd.com/geometry/similarity/parallel-lines-proportional-parts/practice-triangle-proportionality-theorem |
| | 13.1.1 Similar Triangles (iv) | <i>New Syllabus Mathematics</i> , Book 2 (6 th edition) | Chapter 1 | https://www.youtube.com/watch?v=r7m424e3Kdc http://www.themathpage.com/a/trig/ratio-and-proportion.htm#similar |

Note: This resource list has been prepared primarily for teachers. While it can be shared with students, students should not be required to buy multiple books. Schools are encouraged to stock these books in the library. Moreover, these are only suggestions which have been compiled for the ease of teachers and students; schools are encouraged to use other resources for teaching and learning as well, as long as they are in line with the student learning outcomes (SLOs) mentioned in AKU-EB syllabi. Unless specified, AKU-EB does not endorse any of these books or websites. You are advised to use an ad-blocker while accessing the websites. In case any website is not functional for any reason, you may inform us at examination.board@aku.edu for an alternative or search material via any search engine. If you have any query, please contact us via email.



آغا خان یونیورسٹی ایگزامینیشن بورڈ

AGA KHAN UNIVERSITY EXAMINATION BOARD

Teaching and Learning Resources for Grade X Mathematics

Recommended Key Textbook:

Mathematics 10, (Science Group), Ilmi Kitab Khana

| Additional Recommended Resource Material | | | | |
|--|--|--|-----------------------------|--|
| Topic No. | Topic Title | Reference Book | Topic in the Reference Book | Website |
| 14. | Basic Statistics | <i>New Syllabus Mathematics</i> , Book 2 (6 th Edition) | Chapter 11 | http://www.math-only-math.com/real-life-statistics.html http://www.mathsisfun.com/data/index.html |
| | | <i>New Syllabus Mathematics</i> , Book 4 (6 th Edition) | Chapter 4 and 5 | |
| 15. | Algebraic Manipulation | <i>Mathematics for IX</i> , Caravan Publisher | Chapter 6 | http://www.purplemath.com/modules/index.htm |
| | | <i>Mathematics for IX and X</i> , Sindh Textbook Board | Chapter 4 | |
| | | <i>General Mathematics 10</i> , Ali Brotheran, Lahore | Chapter 5 | |
| | | <i>Mathematics IX</i> , Caravan Book House, Lahore | Chapter 4 | |
| | 15.2 Simplification of Algebraic Fractions | <i>New Syllabus Mathematics</i> , Book 2 (6 th Edition) | Chapter 4 | |

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| 16. | Partial Fractions | <i>Mathematics</i> 11, (Algebra and Trigonometry), Punjab Curriculum and Textbook Board | Chapter 5 | http://www.mathcentre.ac.uk/resources/uploaded/mc-ty-partialfractions-2009-1.pdf |
| 17. | Linear Equations and Inequalities | <i>Mathematics</i> for IX, Caravan Publisher | Chapter 7 | http://www.purplemath.com/modules/ineqsolv.htm |
| | | <i>General Mathematics</i> 10, Ali Brotheran, Lahore | Chapter 4 | http://www.purplemath.com/modules/solvein.htm |
| | | <i>New Syllabus Mathematics</i> , Book 1 (6 th Edition) | Chapter 7 | |
| 18. | Linear Graphs and their Application | <i>New Syllabus Mathematics</i> , Book 2 (6 th Edition) | Chapter 8 | https://www.mathsisfun.com/algebra/linear-equations.html |
| | | <i>Mathematics</i> for IX, Caravan Publisher | Chapter 8 | |
| | | <i>General Mathematics</i> 9, Ali Brotheran, Lahore | Chapter 9 | |
| 19. | Quadratic Equations | <i>General Mathematics</i> 10, Ali Brotheran, Lahore | Chapter 5 | http://www.purplemath.com/modules/solvquad.htm http://www.math-only-math.com/methods-of-solving-quadratic-equations.html |

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| 20. | Introduction to Coordinate Geometry | <i>Mathematics</i> for IX, Caravan Publisher | Chapter 9 | http://www.mathopenref.com/coordintro.html |
| | | <i>New additional Mathematics</i> , Ho Soo Thong and Khor Nyak Hiong Panpac Education Private Ltd. | Chapter 7 | http://www.platinumgmat.com/gmat_study_guide/coordinate_geometry |
| | | <i>New Syllabus Mathematics</i> , Book 3 (6 th Edition) | Chapter 4 | |
| 21. | Introduction to Trigonometry | <i>Mathematics</i> 11 (Algebra and Trigonometry), Punjab Curriculum and Textbook Board | Chapter 9 | http://www.math-only-math.com/10th-grade-math.html |
| | | <i>New Syllabus Mathematics</i> , Book 3 (6 th Edition) | Chapter 10, 11 and 12 | http://www.analyzemath.com/high_school_math/grade_10/trigonometry.html |
| | | <i>Mathematics</i> for IX, X, Sindh Textbook Board | Chapter 13 | |
| 22. | Pythagoras' theorem | <i>New Syllabus Mathematics</i> , Book 2 (6 th Edition) | Chapter 6 | http://www.cut-the-knot.org/pythagoras/index.shtml |
| | | <i>Mathematics</i> 9, Carvan Book House, Lahore | Chapter 15 | https://www.mathsisfun.com/pythagoras.html |

| Topic No. | Topic Title | Reference Book | Topic in the Reference Book | Website |
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| 23. | Chords of a Circle | <i>New Mathematics Counts for Secondary 3</i> , Tay Choon Hong Mark Riddington, Martain Grier | Chapter 8 | http://study.com/academy/lesson/chord-of-a-circle-definition-formula.html http://www.mathwarehouse.com/geometry/circle/chord-of-circle.php |
| 24. | Tangent to a Circle | <i>New Syllabus Mathematics</i> , Book 3 (6 th Edition) | Chapter 13 | https://revisionmaths.com/gcse-maths-revision/shape-and-space/circle-theorems |
| 25. | Chords and Arcs | <i>New Mathematics Counts for Secondary 3</i> , Tay Choon Hong Mark Riddington, Martain Grier | Chapter 8 | https://www.cliffsnotes.com/study-guides/geometry/circles/arcs-and-chords |
| 26. | Angles in a Segment | <i>New Syllabus Mathematics</i> , Book 3 (6 th Edition) | Chapter 13 | https://revisionmaths.com/gcse-maths-revision/shape-and-space/circle-theorems http://www.mathopenref.com/circleinscribed.html http://www.mathopenref.com/arccentralangletheorem.html |
| 27. | Practical Geometry- Circles | <i>Mathematics IX and X</i> , Sindh Text Book Board | Chapter 12 | https://www.ixl.com/math/geometry |

Note: This resource list has been prepared primarily for teachers. While it can be shared with students, students should not be required to buy multiple books. Schools are encouraged to stock these books in the library. Moreover, these are only suggestions which have been compiled for the ease of teachers and students; schools are encouraged to use other resources for teaching and learning as well, as long as they are in line with the student learning outcomes (SLOs) mentioned in AKU-EB syllabi. Unless specified, AKU-EB does not endorse any of these books or websites. You are advised to use an ad-blocker while accessing the websites. In case any website is not functional for any reason, you may inform us at examination.board@aku.edu for an alternative or search material via any search engine. If you have any query, please contact us via email.

Some valuable and useful website for teachers and students

- www.purplemath.com
- www.mathopenref.com
- www.youtube.com
- www.mathworld.com
- <https://www.ixl.com/math/geometry>
- <http://www.mathopenref.com/arccentralangletheorem.html>
- <http://www.mathopenref.com/indexpage.html>
- <http://www.sabaq.pk/book-page.php?b=s&c=9-10&s=m>