



MATHEMATICS

Student Textbook

Grade 8

Authors, Editors and Reviewers:

Gebreyes Hailegeorgis (B.SC.)

Basavaraju V.Mohan (Prof./Dr)

Evaluators:

Menberu Kebede

Abdella Mohe



**FEDERAL DEMOCRATIC REPUBLIC OF ETHIOPIA
MINISTRY OF EDUCATION**

AL GHURAIR
PRINTING AND PUBLISHING LLC

Acknowledgements

The redesign, printing and distribution of this student textbook has been funded through the General Education Quality Improvement Project (GEQIP), which aims to improve the quality of education for Grades 1–12 students in government schools throughout Ethiopia.

The Federal Democratic Republic of Ethiopia received funding for GEQIP through credit/financing from the International Development Associations (IDA), the Fast Track Initiative Catalytic Fund (FTI CF) and other development partners – Finland, Italian Development Cooperation, the Netherlands and UK aid from the Department for International Development (DFID).

The Ministry of Education wishes to thank the many individuals, groups and other bodies involved – directly and indirectly – in publishing the textbook and accompanying teacher guide.

Every effort has been made to trace the copyright holders of the images and we apologise in advance for any unintentional omission. We would be pleased to insert the appropriate acknowledgement in any subsequent edition of this publication.

© Federal Democratic Republic of Ethiopia, Ministry of Education
First edition, 2003(E.C.)

ISBN: 978-99944-2-056-8

**Developed, printed and distributed for the Federal Democratic Republic of Ethiopia,
Ministry of Education by:**

Al Ghurair Printing and Publishing House CO. (LLC)

PO Box 5613

Dubai

U.A.E.

In collaboration with

Kuraz International Publisher P.L.C

P.O. Box 100767

Addis Ababa

Ethiopia

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system or transmitted in any form or by any means (including electronic, mechanical, photocopying, recording or otherwise) either prior written permission of the copyright owner or a license permitting restricted copying in Ethiopia by the *Federal Democratic Republic of Ethiopia, Federal Negarit Gazeta, Proclamation No. 410/2004 Copyright and Neighbouring Rights Protection Proclamation, 10th year, No. 55, Addis Ababa, 19 July 2004.*

Disclaimer

Every effort has been made to trace the copyright owners of material used in this document. We apologise in advance for any unintentional omissions. We would be pleased to insert the appropriate acknowledgement in any future edition.

Table of Contents

UNIT 1:	SQUARES, SQUARE ROOTS, CUBES AND CUBE ROOTS	
1.1	The Square of a Number	2
1.2	The Square Root of a Rational Number	12
1.3	Cubes and Cube Roots	22
	Summary	33
	Miscellaneous Exercise	34
UNIT 2:	FURTHER ON WORKING WITH VARIABLES	
2.1	Further on Algebraic Terms and Expressions	38
2.2	Multiplication of Binomials	49
2.3	Highest Common Factors	56
	Summary	63
	Miscellaneous Exercise	64
UNIT 3:	LINEAR EQUATION AND INEQUALITIES	
3.1	Further on Solutions of Linear Equations	68
3.2	Further on Linear Inequalities	81
3.3	Cartesian Coordinate System	84
	Summary	96
	Miscellaneous Exercise	98
UNIT 4:	SIMILAR FIGURES	
4.1	Similar Plane Figures	102
4.2	Similar Triangles	111
	Summary	131
	Miscellaneous Exercise	133
UNIT 5:	CIRCLES	
5.1	Further On Circle	136
5.2	Angles in the Circle	144
	Summary	161
	Miscellaneous Exercise	162

UNIT 6: INTRODUCTION TO PROBABILITY

6.1 The Concept of Probability	167
6.2 Probability of Simple Events	171
Summary	178
Miscellaneous Exercise	178

UNIT 7: GEOMETRY AND MEASUREMENTS

7.1 Theorems on the Right Angled Triangle	180
7.2 Introduction to Trigonometry	196
7.3 Solids Figures	208
Summary	213
Miscellaneous Exercise	215

© MOE, FDR Ethiopia
Not to be republished