GRE Math in 30 Days

The Ultimate Crash Course to Preparing for the GRE Math Test

Dynamic design and easy-to-follow activities	A fun, interactive and concrete learning process	Targeted, skill-building practices

Reza Nazari & Ava Ross

Let's Keep in Touch

Follow Us Online

Visit US at

www.EffortlessMath.com

https://www.facebook.com/Effortlessmath

https://goo.gl/2B6qWW

Online Math Lessons

It's easy! Here's how it works.

1- Request a FREE introductory session.

2- Meet a Math tutor online.

3- Start Learning Math in Minutes.

Send Email to: info@EffortlessMath.com

GRE Math in 30 Days

The Ultimate Crash Course to Preparing for the GRE Math Test

By

Reza Nazari & Ava Ross

Copyright © 2018

Reza Nazari & Ava Ross

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, electronic, mechanical, photocopying, recording, scanning, or otherwise, except as permitted under Section 107 or 108 of the 1976 United States Copyright Ac, without permission of the author.

All inquiries should be addressed to:

info@effortlessMath.com

www.EffortlessMath.com

ISBN-13: 978-1720828440

ISBN-10: 172082844X

Published by: Effortless Math Education

www.EffortlessMath.com

Description

The goal of this book is simple. It will help you incorporate the best method and the right strategies to prepare for the GRE Quantitative Reasoning FAST and EFFECTIVELY.

GRE Math in 30 Days helps you learn all Math topics that you will need to pass the GRE Quantitative Reasoning test. You only need to spend about 90–120 minutes daily in your 30–day period in order to prepare for the test. This book with 2 complete GRE Quantitative Reasoning tests is all you will ever need to fully prepare for the GRE Quantitative Reasoning.

GRE Math in 30 Days provides students with the confidence and math skills they need to succeed on the GRE Math, providing a solid foundation of basic Math topics with abundant exercises for each topic. It is designed to address the needs of GRE test takers who must have a working knowledge of basic Math.

Whether you are intimidated by math, or even if you were the first to raise your hand in the Math classes, this book can help you accelerate the learning process and put you on the right track.

Inside the pages of this comprehensive book, students can learn basic math operations in a structured manner with a complete study program to help them understand essential math skills. It also has many exciting features, including:

- Dynamic design and easy–to–follow activities
- A fun, interactive and concrete learning process
- Targeted, skill–building practices
- Math topics are grouped by category, so you can focus on the topics you struggle on
- All solutions for the exercises are included, so you will always find the answers
- 2 Complete GRE Quantitative Reasoning Practice Tests that reflect the format and question types on GRE

GRE Math in 30 Days is for all GRE Quantitative Reasoning test takers. It is a breakthrough in Math learning — offering a winning formula and the most powerful methods for learning basic Math topics confidently. Each section offers step–by–step instruction and helpful hints, with a few topics being tackled each day. Two complete REAL GRE Quantitative Reasoning tests are provided on Days 29 and 30 to refine your Math skills.

Effortlessly and confidently follow the step–by–step instructions in this book to prepare for the GRE Quantitative Reasoning in a short period of time.

GRE Math in 30 Days **is the only book you'll ever need to master Basic Math topics!** It can be used as a self–study course – you do not need to work with a Math tutor. (It can also be used with a Math tutor).

You'll be surprised how fast you master the Math topics covering on GRE Quantitative Reasoning *Test.*

Ideal for self–study as well as for classroom usage.

Prepare for the GRE Quantitative Reasoning Test Fast and Effectively!



About the Author

Reza Nazari is the author of more than 100 Math learning books including:

– Math for Super Smart Students: Fifth Graders and Older by Reza Nazari

– Math and Critical Thinking Challenges: For the Middle and High School Student

– Effortless Math Education Workbooks

Reza is also an experienced Math instructor and a test–prep expert who has been tutoring students since 2008. Reza is the founder of Effortless Math Education, a tutoring company that has helped many students raise their standardized test scores—and attend the colleges of their dreams. Reza provides an individualized custom learning plan and the personalized attention that makes a difference in how students view math.

To ask questions about Math, you can contact Reza via email at:
reza@EffortlessMath.com

Find Reza's professional profile at:
https://goo.gl/zoC9rJ

Contents

Day 1: Fractions 13
Simplifying Fractions 14
Adding and Subtracting Fractions 15
Multiplying and Dividing Fractions 16
Answers of Worksheets – Day 1 18
Day 2: Mixed Numbers 20
Adding Mixed Numbers 21
Subtract Mixed Numbers 22
Multiplying Mixed Numbers 23
Dividing Mixed Numbers 24
Answers of Worksheets – Day 2 25
Day 3: Decimals 27
Comparing Decimals 28
Rounding Decimals 29
Adding and Subtracting Decimals 30
Multiplying and Dividing Decimals 31
Converting Between Fractions, Decimals and Mixed Numbers 32
Answers of Worksheets – Day 3 34
Day 4: Factoring Numbers 36
Factoring Numbers 37
Greatest Common Factor 38
Least Common Multiple 39
Answers of Worksheets – Day 4 41
Day 5: Integers 42
Adding and Subtracting Integers 43
Multiplying and Dividing Integers 44
Ordering Integers and Numbers 45
Arrange, Order, and Comparing Integers 46
Answers of Worksheets – Day 5 48
Day 6: Order of Operations 50
Order of Operations 51

Mixed Integer Computations 52
Absolute Value 53
Integers and Absolute Value 54
Answers of Worksheets – Day 6 56
Day 7: Ratios 58
Writing Ratios 59
Simplifying Ratios 60
Proportional Ratios 61
Complete the Ratio Table 62
Write Each Ratio in Simplest Form 63
Answers of Worksheets – Day 7 65
Day 8: Proportions 68
Create a Proportion 69
Similar Figures 70
Similar Figure Word Problems 71
Simple Interest 72
Ratio and Rates Word Problems 73
Answers of Worksheets – Day 8 75
Day 9: Percentage 76
Percentage Calculations 77
Converting Between Percent, Fractions, and Decimals 78
Percent Problems 79
Markup, Discount, and Tax 80
Answers of Worksheets – Day 9 82
Day 10: Expressions and Variables 83
Expressions and Variables 84
Simplifying Variable Expressions 85
Simplifying Polynomial Expressions 86
Translate Phrases into an Algebraic Statement 87
Answers of Worksheets – Day 10 89
Day 11: Evaluating Variables 91
The Distributive Property 92

Evaluating One Variable 93
Evaluating Two Variables 94
Combining like Terms 95
Answers of Worksheets – Day 11 97
Day 12: Equations 98
One–Step Equations 99
One–Step Equation Word Problems 100
Two–Step Equations 101
Two–Step Equation Word Problems 102
Multi–Step Equations 103
Answers of Worksheets – Day 12 105
Day 13: Inequalities 107
Graphing Single–Variable Inequalities 108
One–Step Inequalities 109
Two–Step Inequalities 110
Multi–Step Inequalities 111
Answers of Worksheets – Day 13 113
Day 14: Graphing Lines 115
Finding Slope 116
Graphing Lines Using Slope–Intercept Form 117
Graphing Lines Using Standard Form 118
Answers of Worksheets – Day 14 120
Day 15: Midpoint and Distance 122
Writing Linear Equations 123
Graphing Linear Inequalities 124
Finding Midpoint 125
Finding Distance of Two Points 126
Answers of Worksheets – Day 15 128
Day 16: Polynomials 131
Classifying Polynomials 132
Writing Polynomials in Standard Form 133
Simplifying Polynomials 134

Adding and Subtracting Polynomials 135
Answers of Worksheets – Day 16 137
Day 17: Monomials and Polynomials Operations 139
Multiplying Monomials 140
Multiplying and Dividing Monomials 141
Multiplying a Polynomial and a Monomial 142
Multiplying Binomials 143
Factoring Trinomials 144
Operations with Polynomials 145
Answers of Worksheets – Day 17 147
Day 18: Quadratic and System of Equations 149
Solve a Quadratic Equation 150
Solving Systems of Equations by Substitution 151
Solving Systems of Equations by Elimination 152
Systems of Equations Word Problems 153
Answers of Worksheets – Day 18 155
Day 19: Quadratic Functions 156
Graphing quadratic functions in standard form 157
Graphing quadratic functions in vertex form 158
Solving quadratic equations by factoring 159
Use the quadratic formula and the discriminant 160
Operations with complex numbers 161
Solve quadratic inequalities 162
Answers of Worksheets – Day 19 163
Day 20: Exponents 168
Multiplication Property of Exponents 169
Division Property of Exponents 170
Powers of Products and Quotients 171
Answers of Worksheets – Day 20 173
Day 21: Exponents and Roots 174
Zero and Negative Exponents 175
Negative Exponents and Negative Bases 176

Writing Scientific Notation 177
Square Roots 178
Answers of Worksheets – Day 21 180
Day 22: Functions Operations 182
Relations and functions 183
Function notation 184
Adding and subtracting functions 185
Multiplying and dividing functions 186
Composition of functions 187
Answers of Worksheets – Day 22 189
Day 23: Triangles 191
The Pythagorean Theorem 192
Area of Triangles 193
Perimeter of Polygons 194
Answers of Worksheets – Day 23 196
Day 24: Area and Perimeter 197
Area and Circumference of Circles 198
Area of Squares, Rectangles, and Parallelograms 199
Area of Trapezoids 200
Volume 201
Answers of Worksheets – Day 24 203
Day 25: Volume and Surface Area 204
Volume of Rectangle Prisms 205
Surface Area of Cubes 206
Surface Area of a Rectangle Prism 207
Volume of a Cylinder 208
Surface Area of a Cylinder 209
Answers of Worksheets – Day 25 211
Day 26: Statistics 212
Mean, Median, Mode, and Range of the Given Data 213
Bar Graph 214
Box and Whisker Plots 215

Stem–And–Leaf Plot 216
Answers of Worksheets – Day 26 217
Day 27: Data and Probability 220
The Pie Graph or Circle Graph 221
Scatter Plots 222
Probability Problems 223
Answers of Worksheets – Day 27 225
Day 28: Probability 227
Probability of Simple Events 228
Factorials 229
Permutations 230
Combination 231
Answers of Worksheets – Day 28 233
Day 29: Time to Test 236
GRE Quantitative Reasoning Practice Test Answers and Explanations 256
Day 30: A Realistic GRE Quantitative Reasoning Practice Test 268
GRE Quantitative Reasoning Practice Test Answers and Explanations 289

Day 1: Fractions

Math Topics that you'll learn today:

- ✓ Comparing Numbers
- ✓ Simplifying Fractions
- ✓ Adding and Subtracting Fractions
- ✓ Multiplying and Dividing Fractions

"A Man is like a fraction whose numerator is what he is and whose denominator is what he thinks of himself. The larger the denominator, the smaller the fraction." –Tolstoy

Simplifying Fractions

Helpful Hints

- Evenly divide both the top and bottom of the fraction by 2, 3, 5, 7, ... etc.
- Continue until you can't go any further.

Example:

$$\frac{4}{12} = \frac{2}{6} = \frac{1}{3}$$

Simplify the fractions.

1) $\frac{22}{36}$

2) $\frac{8}{10}$

3) $\frac{12}{18}$

4) $\frac{6}{8}$

5) $\frac{13}{39}$

6) $\frac{5}{20}$

7) $\frac{16}{36}$

8) $\frac{18}{36}$

9) $\frac{20}{50}$

10) $\frac{6}{54}$

11) $\frac{45}{81}$

12) $\frac{21}{28}$

13) $\frac{35}{56}$

14) $\frac{52}{64}$

15) $\frac{13}{65}$

16) $\frac{44}{77}$

17) $\frac{21}{42}$

18) $\frac{15}{36}$

19) $\frac{9}{24}$

20) $\frac{20}{80}$

21) $\frac{25}{45}$

Adding and Subtracting Fractions

Helpful Hints

- For "like" fractions (fractions with the same denominator), add or subtract the numerators and write the answer over the common denominator.
- Find equivalent fractions with the same denominator before you can add or subtract fractions with different denominators.
- Adding and Subtracting with the same denominator:

$$\frac{a}{b}+\frac{c}{b}=\frac{a+c}{b}$$

$$\frac{a}{b}-\frac{c}{b}=\frac{a-c}{b}$$

Adding and Subtracting fractions with different denominators:

$$\frac{a}{b}+\frac{c}{d}=\frac{ad+cb}{bd}$$

$$\frac{a}{b}-\frac{c}{d}=\frac{ad-cb}{bd}$$

Add fractions.

1) $\frac{2}{3}+\frac{1}{2}$

2) $\frac{3}{5}+\frac{1}{3}$

3) $\frac{5}{6}+\frac{1}{2}$

4) $\frac{7}{4}+\frac{5}{9}$

5) $\frac{2}{5}+\frac{1}{5}$

6) $\frac{3}{7}+\frac{1}{2}$

7) $\frac{3}{4}+\frac{2}{5}$

8) $\frac{2}{3}+\frac{1}{5}$

9) $\frac{16}{25}+\frac{3}{5}$

Subtract fractions.

10) $\frac{4}{5}-\frac{2}{5}$

11) $\frac{3}{5}-\frac{2}{7}$

12) $\frac{1}{2}-\frac{1}{3}$

13) $\frac{8}{9}-\frac{3}{5}$

14) $\frac{3}{7}-\frac{3}{14}$

15) $\frac{4}{15}-\frac{1}{10}$

16) $\frac{3}{4}-\frac{13}{18}$

17) $\frac{5}{8}-\frac{2}{5}$

18) $\frac{1}{2}-\frac{1}{9}$

Multiplying and Dividing Fractions

Helpful Hints

- **Multiplying fractions:** multiply the top numbers and multiply the bottom numbers.
- **Dividing fractions:** Keep, Change, Flip
  Keep first fraction, change division sign to multiplication, and flip the numerator and denominator of the second fraction. Then, solve!

Example:

$$\frac{a}{b} \times \frac{c}{d} = \frac{a \times c}{b \times \mathrm{d}}$$

$$\frac{a}{b} \div \frac{c}{d} = \frac{a}{b} \times \frac{d}{c} = \frac{ad}{bc}$$

Multiplying fractions. Then simplify.

1) $\frac{1}{5} \times \frac{2}{3}$

2) $\frac{3}{4} \times \frac{2}{3}$

3) $\frac{2}{5} \times \frac{3}{7}$

4) $\frac{3}{8} \times \frac{1}{3}$

5) $\frac{3}{5} \times \frac{2}{5}$

6) $\frac{7}{9} \times \frac{1}{3}$

7) $\frac{2}{3} \times \frac{3}{8}$

8) $\frac{1}{4} \times \frac{1}{3}$

9) $\frac{5}{7} \times \frac{7}{12}$

Dividing fractions.

10) $\frac{2}{9} \div \frac{1}{4}$

11) $\frac{1}{2} \div \frac{1}{3}$

12) $\frac{6}{11} \div \frac{3}{4}$

13) $\frac{11}{14} \div \frac{1}{10}$

14) $\frac{3}{5} \div \frac{5}{9}$

15) $\frac{1}{2} \div \frac{1}{2}$

16) $\frac{3}{5} \div \frac{1}{5}$

17) $\frac{12}{21} \div \frac{3}{7}$

18) $\frac{5}{14} \div \frac{9}{10}$