

Student Workbook

This workbook is your ticket to score higher on Algebra II test

Algebra II Exercise Book

Student Workbook 2019

- Content 100% aligned with the Algebra II courses
- Written by experienced Math tutors and test experts
- Complete coverage of all Algebra II concepts and topics which you will be tested
- Over 2,500 additional Algebra II math practice questions
- Abundant Math skill building exercises

Get ready for the Algebra II Test with a PERFECT Workbook!

Reza Nazari & Ava Ross

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Algebra II Exercise Book:

Student Workbook

By

Reza Nazari

& Ava Ross

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Description

This Algebra workbook's new edition has been updated to replicate questions appearing on the most recent Algebra II test. Here is intensive preparation for the Algebra II course, and a precious learning tool for Algebra takers who need extra practice in math to raise their Algebra II scores. After completing this workbook, you will have solid foundation and adequate practice that is necessary to ace the Algebra II Test. **This workbook is your ticket to score higher on Algebra II test.**

The updated version of this hands-on workbook represents extensive exercises, math problems, sample Algebra II questions, and quizzes with answers and detailed solutions to help you hone your math skills, overcome your exam anxiety, and boost your confidence -- and do your best to defeat Algebra II exam on test day.

Each of math exercises is answered in the book which will help you find your weak areas and raise your scores. This is a unique and perfect practice book to beat the Algebra II Test.

Separate math chapters offer a complete review of the Algebra course, including:

- Equations and Inequalities
- Quadratic Functions and System of Equations
- Polynomial Operations
- Functions and their applications
- Imaginary Numbers
- Matrices and Matrix Equations
- Exponential and Logarithmic Functions
- Trigonometric Functions
- … and many more Algebra II topics

The surest way to succeed on Algebra II is with intensive practice in every math topic tested--and that's what you will get in ***Algebra II Exercise Book***. Each chapter of this focused format has a comprehensive review created by Math experts that goes into detail to cover all of the content likely to appear on the Algebra II test.

Effortless Math Workbook *for the Algebra II* contains many exciting and unique features to help you improve your Algebra scores, including:

- Content 100% aligned with the Algebra II courses
- Written by experienced Math tutors and test experts
- Complete coverage of all Algebra II concepts and topics which you will be tested
- Over 2,500 additional Algebra II math practice questions in both multiple-choice and grid-in formats with answers grouped by topic, so you can focus on your weak areas
- Abundant Math skill building exercises to help you approach different question types that might be unfamiliar to you

- Exercises on different Algebra II topics such as equations, polynomials, exponents and radicals, functions, etc.

This Algebra II Workbook and other Effortless Math Education books are used by thousands of students each year to help them review core content areas, brush-up in math, discover their strengths and weaknesses, and achieve their best scores on the Algebra test.

Get ready for the Algebra II Test with a PERFECT Workbook!

About the Author

Reza Nazari is the author of more than 100 Math learning books including:
– Math and Critical Thinking Challenges: For the Middle and High School Student
– GED Math in 30 Days
– ASVAB Math Workbook 2018 - 2019
– Effortless Math Education Workbooks
– and many more Mathematics books …

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.

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Contents

Description 4

Chapter 1: Fundamentals and Building Blocks 11

Order of Operations 12

Scientific Notation 13

Exponents Operations 14

Evaluating Expressions 15

Simplifying Algebraic Expressions 16

Answers of Worksheets – Chapter 1 17

Chapter 2: Equations and Inequalities 19

One–Step Equations 20

Multi–Step Equations 21

Graphing Single–Variable Inequalities 22

One–Step Inequalities 23

Multi-Step Inequalities 24

Answers of Worksheets – Chapter 2 25

Chapter 3: System of Equations and Quadratic 28

Systems of Equations 29

Systems of Equations Word Problems 30

Systems of 3 Variable Equations 31

Quadratic 32

Solving Quadratic Equations 33

Quadratic Formula and the Discriminant 34

Quadratic Inequalities 35

Graphing Quadratic Functions 36

Answers of Worksheets – Chapter 4 37

Chapter 5: Complex Numbers 40

Adding and Subtracting Complex Numbers 41

Multiplying and Dividing Complex Numbers 42

Graphing Complex Numbers 43

Rationalizing Imaginary Denominators 44
Answers of Worksheets – Chapter 5 45
Chapter 6: Matrices 47
Adding and Subtracting Matrices 48
Matrix Multiplication 49
Finding Determinants of a Matrix 50
Finding Inverse of a Matrix 51
Matrix Equations 52
Answers of Worksheets – Chapter 6 53
Chapter 7: Polynomial Operations 57
Writing Polynomials in Standard Form 58
Simplifying Polynomials 59
Adding and Subtracting Polynomials 60
Multiplying Monomials 61
Multiplying and Dividing Monomials 62
Multiplying a Polynomial and a Monomial 63
Multiplying Binomials 64
Factoring Trinomials 65
Operations with Polynomials 66
Answers of Worksheets – Chapter 7 67
Chapter 8: Functions Operations 71
Evaluating Function 72
Adding and Subtracting Functions 73
Multiplying and Dividing Functions 74
Composition of Functions 75
Answers of Worksheets – Chapter 8 76
Chapter 9: Logarithms 78
Rewriting Logarithms 79
Evaluating Logarithms 80
Properties of Logarithms 81

Natural Logarithms 82
Exponential Equations and Logarithms 83
Solving Logarithmic Equations 84
Answers of Worksheets – Chapter 9 85
Chapter 10: Radical Expressions 88
Simplifying Radical Expressions 89
Multiplying Radical Expressions 90
Simplifying Radical Expressions Involving Fractions 91
Adding and Subtracting Radical Expressions 92
Domain and Range of Radical Functions 93
Solving Radical Equations 94
Answers of Worksheets – Chapter 10 95
Chapter 11: Rational Expressions 99
Simplifying and Graphing Rational Expressions 100
Adding and Subtracting Rational Expressions 101
Multiplying and Dividing Rational Expressions 102
Solving Rational Equations and Complex Fractions 103
Answers of Worksheets – Chapter 11 104
Chapter 12: Conic Sections 107
Finding the Equation of a Parabola 108
Finding the Focus, Vertex, and Directrix of a Parabola 109
Circles 110
Ellipses 111
Hyperbola 112
Writing the Equation of a Hyperbola in Standard Form 113
Classifying a Conic Section (in Standard Form) 114
Answers of Worksheets – Chapter 12 115
Chapter 13: Trigonometric Functions 120
Trig ratios of General Angles 121
Sketch Each Angle in Standard Position 122

Finding Co-terminal Angles and Reference Angles 123
Angles and Angle Measure 124
Evaluating Trigonometric Functions 125
Missing Sides and Angles of a Right Triangle 126
Arc Length and Sector Area 127
Answers of Worksheets – Chapter 16 128
Chapter 14: Statistics and Probabilities 131
Probability Problems 132
Factorials 133
Combinations and Permutations 134
Answers of Worksheets – Chapter 14 135
Chapter 15: Sequences and Series 136
Arithmetic Sequences 137
Geometric Sequences 138
Comparing Arithmetic and Geometric Sequences 139
Finite Geometric Series 140
Infinite Geometric Series 141
Answers of Worksheets – Chapter 15 142

Chapter 1: Fundamentals and Building Blocks

Topics that you'll learn in this chapter:

- ✓ The Order of Operation
- ✓ Scientific Notation
- ✓ Exponents Operations
- ✓ Evaluating Expressions
- ✓ Simplifying Algebraic Expressions

Order of Operations

Evaluate each expression.

1) $5 + (4 \times 2) =$

2) $13 - (2 \times 5) =$

3) $(16 \times 2) + 18 =$

4) $(12 - 5) - (4 \times 3) =$

5) $25 + (14 \div 2) =$

6) $(18 \times 5) \div 5 =$

7) $(48 \div 2) \times (-4) =$

8) $(7 \times 5) + (25 - 12) =$

9) $64 + (3 \times 2) + 8 =$

10) $(20 \times 5) \div (4 + 1) =$

11) $(-9) + (12 \times 6) + 15 =$

12) $(7 \times 8) - (56 \div 4) =$

13) $(4 \times 8 \div 2) - (17 + 11) =$

14) $(18 + 8 - 15) \times 5 - 3 =$

15) $(25 - 12 + 45) \times (95 \div 5) =$

16) $28 + \big(15 - (32 \div 2)\big) =$

17) $(6 + 7 - 4 - 9) + (18 \div 2) =$

18) $(95 - 17) + (10 - 25 + 9) =$

19) $(18 \times 2) + (15 \times 5) - 12 =$

20) $12 + 8 - (42 \times 4) + 50 =$

Scientific Notation

Write each number in scientific notation.

1) $0.113 =$
2) $0.02 =$
3) $2.5 =$
4) $20 =$
5) $60 =$
6) $0.004 =$
7) $78 =$
8) $1{,}600 =$
9) $1{,}450 =$
10) $91{,}000 =$
11) $2{,}000{,}000 =$
12) $0.0000006 =$
13) $354{,}000 =$
14) $0.000325 =$
15) $0.00023 =$
16) $56{,}000{,}000 =$
17) $21{,}000 =$
18) $78{,}000{,}000 =$
19) $0.0000022 =$
20) $0.00012 =$

Write each number in standard notation.

21) $3 \times 10^{-1} =$
22) $5 \times 10^{-2} =$
23) $1.2 \times 10^{3} =$
24) $2 \times 10^{-4} =$
25) $1.5 \times 10^{-2} =$
26) $4 \times 10^{3} =$
27) $9 \times 10^{5} =$
28) $1.12 \times 10^{4} =$
29) $3 \times 10^{-5} =$
30) $8.3 \times 10^{-5} =$

Exponents Operations

Simplify.

1) $(4^2)^2 =$

2) $(6^2)^3 =$

3) $(2 \times 2^3)^4 =$

4) $(4 \times 4^4)^2 =$

5) $(3^3 \times 3^2)^3 =$

6) $(5^4 \times 5^5)^2 =$

7) $(2 \times 2^4)^2 =$

8) $(2^6)^2 =$

9) $(11x^5)^2 =$

10) $(4x^2y^4)^4 =$

11) $(2x^4y^4)^3 =$

12) $(3x^2y^2)^2 =$

13) $(3x^4y^3)^4 =$

14) $(2x^6y^8)^2 =$

15) $(12x^3x)^3 =$

16) $(2x^9x^6)^3 =$

17) $(5x^{10}y^3)^3 =$

18) $(4x^3x^3)^2 =$

19) $(3x^3.5x)^2 =$

20) $(10x^{11}y^3)^2 =$

21) $(9x^7y^5)^2 =$

22) $(4x^4y^6)^5 =$

23) $(3x.4y^3)^2 =$

24) $(\frac{5x}{x^2})^2 =$

25) $\left(\frac{x^4y^4}{x^2y^2}\right)^3 =$

26) $\left(\frac{25x}{5x^6}\right)^2 =$

27) $\left(\frac{x^8}{x^6y^2}\right)^2 =$

28) $\left(\frac{xy^2}{x^3y^3}\right)^{-2} =$

29) $\left(\frac{2xy^4}{x^3}\right)^2 =$

30) $\left(\frac{xy^4}{5xy^2}\right)^{-3} =$

Evaluating Expressions

Evaluate each expression using the values given.

1) $2x + 4y$,
$x = 3, y = 2$

2) $8x + 5y$,
$x = 1, y = 5$

3) $-2a + 4b$,
$a = 6, b = 3$

4) $4x + 7 - 2y$,
$x = 7, y = 6$

5) $5z + 12 - 4k$,
$z = 5\ , k = 2$

6) $2\ (-x - 2y)$,
$x = 6, y = 9$

7) $18a + 2b$,
$a = 2, b = 8$

8) $4x \div 3y$,
$x = 3, y = 2$

9) $2x + 15 + 4y$,
$x = -2, y = 4$

10) $4a - (15 - b)$,
$a = 4, b = 6$

11) $5z + 19 + 8k$,
$z = -5, k = 4$

12) $xy + 12 + 5x$,
$x = 7, y = 2$

13) $2x + 4y - 3 + 2$,
$x = 5, y = 3$

14) $\left(-\frac{12}{x}\right) + 1 + 5y$,
$x = 6, y = 8$

15) $(-4)\ (-2a - 2b)$,
$a = 5, b = 3$

16) $10 + 3x + 7 - 2y$,
$x = 7, y = 6$

17) $9x + 2 - 4y + 5$,
$x = 7, y = 5$

18) $6 + 3(-2x - 3y)$,
$x = 9, y = 7$

19) $2x + 14 + 4y$,
$x = 6, y = 8$

20) $4a - (5a - b) + 5$,
$a = 4, b = 6$

Simplifying Algebraic Expressions

Simplify each expression.

1) $3(x+9) =$
2) $(-6)(8x-4) =$
3) $7x+3-3x =$
4) $-2-x^2-6x^2 =$
5) $3+10x^2+2 =$
6) $8x^2+6x+7x^2 =$
7) $5x^2-12x^2+8x =$
8) $2x^2-2x-x =$
9) $4x+6(2-5x) =$
10) $10x+8(10x-6) =$
11) $9\,(-2x-6)-5 =$
12) $2x^2+(-8x) =$
13) $x-3+5-3x =$
14) $2-3x+12-2x =$
15) $32x-4+23+2x =$
16) $(-6)(8x-4)+10x =$
17) $14x-5(5-8x) =$
18) $23x+4(9x+3)+12 =$
19) $3(-7x+5)+20x =$
20) $12x-3x(x+9) =$
21) $7x+5x(3-3x) =$
22) $5x(-8x+12)+14x =$
23) $40x+12+2x^2 =$
24) $5x(x-3)-10 =$
25) $8x-7+8x+2x^2 =$
26) $2x^2-5x-7x =$
27) $7x-3x^2-5x^2-3 =$
28) $4+x^2-6x^2-12x =$
29) $12x+8x^2+2x+20 =$
30) $2x^2+6x+3x^2 =$
31) $23+15x^2+8x-4x^2 =$
32) $8x-12x-x^2+13 =$

Answers of Worksheets – Chapter 1

The Order of Operation

1) 13
2) 3
3) 50
4) -5
5) 32
6) 18
7) -96
8) 48
9) 78
10) 20
11) 78
12) 42
13) -12
14) 52
15) 1,102
16) 27
17) 9
18) 72
19) 99
20) -98

Scientific Notation

1) 2×10^{-2}
2) 2.5×10^{0}
3) 2×10^{1}
4) 6×10^{1}
5) 4×10^{-3}
6) 7.8×10^{1}
7) 1.6×10^{3}
8) 1.45×10^{3}
9) 9.1×10^{4}
10) 2×10^{6}
11) 6×10^{-7}
12) 3.54×10^{5}
13) 3.25×10^{-4}
14) 2.3×10^{-4}
15) 5.6×10^{7}
16) 2.1×10^{4}
17) 7.8×10^{7}
18) 2.2×10^{-6}
19) 1.2×10^{-4}
20) 0.3
21) 0.05
22) 1,200
23) 0.0002
24) 0.015
25) 4,000
26) 900,000
27) 11,200
28) 0.00003
29) 0.000083

Exponents Operations

1) 4^4
2) 6^6
3) 2^{16}
4) 4^{10}
5) 3^{15}
6) 5^{18}
7) 2^{10}
8) 2^{12}
9) $121x^{10}$
10) $256x^{8}y^{16}$
11) $8x^{12}y^{12}$
12) $9x^{4}y^{4}$
13) $81x^{16}y^{12}$
14) $4x^{12}y^{16}$
15) $1{,}728x^{12}$
16) $8x^{45}$
17) $125x^{30}y^{9}$
18) $16x^{12}$
19) $225x^{8}$
20) $100x^{22}y^{6}$
21) $81x^{14}y^{10}$
22) $1{,}024x^{20}y^{30}$
23) $144x^{2}y^{6}$
24) $\frac{25}{x^2}$
25) $x^{2}y^{2}$
26) $\frac{25y^4}{x^{10}}$
27) $\frac{x^4}{y^4}$
28) $x^{4}y^{2}$
29) $\frac{4y^8}{x^4}$
30) $\frac{125}{y^6}$

Evaluating Expressions

1) 14
2) 33
3) 0
4) 23
5) 29
6) -48
7) 52
8) 2
9) 27
10) 7
11) 26
12) 61
13) 21
14) 39
15) 64
16) 26
17) 50
18) -111
19) 58
20) 7

Simplifying Algebraic Expressions

1) $3x + 27$
2) $-48x + 24$
3) $4x + 3$
4) $-7x^2 - 2$
5) $10x^2 + 5$
6) $15x^2 + 6x$
7) $-7x^2 + 8x$
8) $2x^2 - 3x$
9) $-24x + 12$
10) $90x - 48$
11) $-18x - 59$
12) $2x^2 - 8x$
13) $-2x + 2$
14) $-5x + 14$
15) $34x + 19$
16) $-38x + 24$
17) $54x - 25$
18) $59x + 24$
19) $-x + 15$
20) $-3x^2 - 15x$
21) $-15x^2 + 22x$
22) $-40x^2 + 74x$
23) $2x^2 + 40x + 12$
24) $5x^2 - 15x - 10$
25) $2x^2 + 16x - 7$
26) $2x^2 - 12x$
27) $-8x^2 + 7x - 3$
28) $-5x^2 - 12x + 4$
29) $8x^2 + 14x + 20$
30) $5x^2 + 6x$
31) $11x^2 + 8x + 23$
32) $-x^2 - 4x + 13$

Chapter 2: Equations and Inequalities

Topics that you'll learn in this chapter:

- ✓ One–Step Equations
- ✓ Multi–Step Equations
- ✓ Graphing Single–Variable Inequalities
- ✓ One–Step Inequalities
- ✓ Multi-Step Inequalities