

Ace the ASVAB Math in 30 Days

The Ultimate Crash Course to Beat the ASVAB Math Test

Reza Nazari & Ava Ross

www.EffortlessMath.com

… So Much More Online!

- ✓ FREE Math lessons
- ✓ More Math learning books!
- ✓ Mathematics Worksheets
- ✓ Online Math Tutors

Need a PDF version of this book?

Send email to: Info@EffortlessMath.com

Ace the ASVAB Math in 30 Days

The Ultimate Crash Course to Beat the ASVAB Math Test

By

Reza Nazari

& Ava Ross

Copyright © 2019

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: 978-1-970036-72-5

ISBN–10: 1-970036-72-9

Published by: Effortless Math Education

www.EffortlessMath.com

Description

The goal of this book is simple. It will help you incorporate the most effective method and the right strategies to prepare for the ASVAB Math test quickly and effectively.

Ace the ASVAB Math in 30 Days, which reflects the 2019 test guidelines and topics, is designed to help you hone your math skills, overcome your exam anxiety, and boost your confidence -- and do your best to defeat ASVAB Math Test. This ASVAB Math new edition has been updated to replicate questions appearing on the most recent ASVAB Math tests. This is a precious learning tool for ASVAB Math test takers who need extra practice in math to improve their ASVAB Math score. After reviewing this book, you will have solid foundation and adequate practice that is necessary to ace the ASVAB Math test. **This book is your ticket to ace the ASVAB Math!**

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

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

- Content 100% aligned with the 2019 ASVAB® test
- Written by ASVAB® Math tutors and test experts
- Complete coverage of all ASVAB Math concepts and topics which you will be tested
- Step-by-step guide for all ASVAB Math topics
- Dynamic design and easy-to-follow activities
- Over 2,500 additional ASVAB 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 test-takers approach different question types that might be unfamiliar to them
- Exercises on different ASVAB Math topics such as integers, percent, equations, polynomials, exponents and radicals
- 2 full-length practice tests (featuring new question types) with detailed answers

Effortlessly and confidently follow the step-by-step instructions in this book to ace the ASVAB Math in a short period of time.

ASVAB 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 ASVAB Math Test.

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

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
– GRE 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.

You can contact Reza via email at:
reza@EffortlessMath.com

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

Contents

Day 1: Whole Numbers 11
Rounding 12
Whole Number Addition and Subtraction 13
Whole Number Multiplication 14
Whole Number Division 15
Rounding and Estimates 16
Answers – Day 1 17
Day 2: Fractions 18
Simplifying Fractions 19
Adding and Subtracting Fractions 20
Multiplying and Dividing Fractions 21
Answers – Day 2 22
Day 3: Mixed Numbers 23
Adding Mixed Numbers 24
Subtract Mixed Numbers 25
Multiplying Mixed Numbers 26
Dividing Mixed Numbers 27
Answers – Day 3 28
Day 4: Decimals 29
Comparing Decimals 30
Rounding Decimals 31
Adding and Subtracting Decimals 32
Multiplying and Dividing Decimals 33
Answers – Day 4 34
Day 5: Factoring Numbers 35
Factoring Numbers 36
Greatest Common Factor 37
Least Common Multiple 38
Answers – Day 5 39
Day 6: Integers 40
Adding and Subtracting Integers 41

Multiplying and Dividing Integers 42
Ordering Integers and Numbers 43
Answers – Day 6 44
Day 7: Order of Operations 45
Order of Operations 46
Integers and Absolute Value 47
Answers – Day 7 48
Day 8: Ratios 49
Simplifying Ratios 50
Proportional Ratios 51
Answers – Day 8 52
Day 9: Similarity and Proportions 53
Create a Proportion 54
Similarity and Ratios 55
Simple Interest 56
Answers – Day 9 57
Day 10: Percentage 58
Percentage Calculations 59
Percent Problems 60
Answers – Day 10 61
Day 11: Percent of Change 62
Percent of Increase and Decrease 63
Discount, Tax and Tip 64
Answers – Day 11 65
Day 12: Exponents and Variables 66
Multiplication Property of Exponents 67
Division Property of Exponents 68
Powers of Products and Quotients 69
Answers – Day 12 70
Day 13: Exponents and Roots 71
Zero and Negative Exponents 72
Negative Exponents and Negative Bases 73

Scientific Notation 74
Square Roots 75
Answers – Day 13 76
Day 14: Expressions and Variables 77
Simplifying Variable Expressions 78
Simplifying Polynomial Expressions 79
Translate Phrases into an Algebraic Statement 80
Answers – Day 14 81
Day 15: Evaluating Variables 82
The Distributive Property 83
Evaluating One Variable 84
Evaluating Two Variables 85
Combining like Terms 86
Answers – Day 15 87
Day 16: Equations and Inequalities 88
One–Step Equations 89
Multi–Step Equations 90
Graphing Single–Variable Inequalities 91
Answers – Day 16 92
Day 17: Solving Inequalities 93
One–Step Inequalities 94
Multi–Step Inequalities 95
Answers – Day 17 96
Day 18: Lines and Slope 97
Finding Slope 98
Graphing Lines Using Slope–Intercept Form 99
Graphing Lines Using Standard Form 100
Answers – Day 18 101
Day 19: Linear Equations and Inequalities 103
Writing Linear Equations 104
Graphing Linear Inequalities 105
Finding Midpoint 106

Finding Distance of Two Points 107
Answers – Day 19 108
Day 20: Polynomials 110
Writing Polynomials in Standard Form 111
Simplifying Polynomials 112
Adding and Subtracting Polynomials 113
Answers – Day 20 114
Day 21: Monomials Operations 115
Multiplying Monomials 116
Multiplying and Dividing Monomials 117
Multiplying a Polynomial and a Monomial 118
Answers – Day 21 119
Day 22: Polynomials Operations 120
Multiplying Binomials 121
Factoring Trinomials 122
Operations with Polynomials 123
Answers – Day 22 124
Day 23: System of Equations 125
Systems of Equations 126
Systems of Equations Word Problems 127
Answers – Day 23 128
Day 24: Triangles and Polygons 129
The Pythagorean Theorem 130
Triangles 131
Polygons 132
Answers – Day 24 133
Day 25: Circles, Trapezoids and Cubes 134
Circles 135
Trapezoids 136
Cubes 137
Answers – Day 25 138
Day 26: Rectangular Prisms and Cylinder 139

Rectangular Prisms 140
Cylinder 141
Answers – Day 26 142
Day 27: Statistics 143
Mean, Median, Mode, and Range of the Given Data 144
Histograms 145
Answers – Day 27 146
Day 28: Data and Probability 147
Pie Graph 148
Probability Problems 149
Answers – Day 28 150
Day 29: Time to Test 151
ASVAB Math Practice Tests 2019 153
ASVAB Mathematics Practice Test Answers and Explanations 162
Day 30: A Realistic ASVAB Math Test 166
ASVAB Math Practice Tests 2019 167
ASVAB Mathematics Practice Test Answers and Explanations 179

Day 1:

Whole Numbers

Math Topics that you'll learn today:

- ✓ Rounding
- ✓ Whole Number Addition and Subtraction
- ✓ Whole Number Multiplication and Division
- ✓ Rounding and Estimates

"If people do not believe that mathematics is simple, it is only because they do not realize how complicated life is."

— John von Neumann

Rounding

Step-by-step guide:

Rounding is putting a number up or down to the nearest whole number or the nearest hundred, etc.

- ✓ *First, find the place value you'll round to.*
- ✓ *Find the digit to the right of the place value you're rounding to. If it is 5 or bigger, add 1 to the place value you're rounding to and put zero for all digits on its right side. If the digit to the right of the place value is less than 5, keep the place value and put zero for all digits to the right.*

Examples:

1) Round 64 to the nearest ten.

The place value of ten is 6. The digit on the right side is 4 (which is less than 5). Keep 6 and put zero for the digit on the right side. The answer is 60. 64 rounded to the nearest ten is 60, because 64 is closer to 60 than to 70.

2) Round 694 to the nearest hundred.

694 rounded to the nearest hundred is 700, because the digit on the right side of hundred place is 9. Add 1 to 6 and put zeros for other digits. The answer is 700.

Round each number to the nearest ten.

1) $84 =$ ____
2) $70 =$ ____
3) $47 =$ ____
4) $63 =$ ____
5) $79 =$ ____
6) $55 =$ ____

Round each number to the nearest hundred.

7) $185 =$ ____
8) $254 =$ ____
9) $729 =$ ____
10) $109 =$ ____
11) $222 =$ ____
12) $311 =$ ____

Whole Number Addition and Subtraction

Step-by-step guide:

- ✓ *Line up the numbers.*
- ✓ *Start with the unit place. (ones place)*
- ✓ *Regroup if necessary.*
- ✓ *Add or subtract the tens place.*
- ✓ *Continue with other digits.*

Examples:

1) Find the sum. $285 + 145 = ?$

First line up the numbers: $\begin{array}{r} 285 \\ +\ 145 \\ \hline \end{array}$ → Start with the unit place. (ones place) $5 + 5 = 10$,

Write 0 for ones place and keep 1, $\begin{array}{r} {\scriptstyle 1} \\ 285 \\ +\ 145 \\ \hline 0 \end{array}$, Add the tens place and the digit 1 we kept:

$1 + 8 + 4 = 13$, Write 3 and keep 1, $\begin{array}{r} {\scriptstyle 1\ 1} \\ 285 \\ +\ 145 \\ \hline 30 \end{array}$

Continue with other digits → $1 + 2 + 1 = 4$ → $\begin{array}{r} {\scriptstyle 1\ 1} \\ 285 \\ +\ 145 \\ \hline 430 \end{array}$

2) Find the difference. $976 - 453 = ?$

First line up the numbers: $\begin{array}{r} 976 \\ -\ 453 \\ \hline \end{array}$, → Start with the unit place. $6 - 3 = 3$, $\begin{array}{r} 976 \\ -\ 453 \\ \hline 3 \end{array}$,

Subtract the tens place. $7 - 5 = 2$, $\begin{array}{r} 976 \\ -\ 453 \\ \hline 23 \end{array}$, Continue with other digits → $9 - 4 = 5$, $\begin{array}{r} 976 \\ -\ 453 \\ \hline 523 \end{array}$

Find the sum or difference.

1) $1{,}264 + 856 =$
2) $2{,}689 - 456 =$
3) $1{,}432 - 556 =$
4) $2{,}820 + 464 =$
5) $2{,}170 + 245 =$
6) $3{,}221 + 2{,}560 =$
7) $3{,}788 + 1{,}892 =$
8) $4{,}238 + 2{,}576 =$

Whole Number Multiplication

Step-by-step guide:

- ✓ Learn the times tables first! To solve multiplication problems fast, you need to memorize the times table. For example, 3 times 8 is 24 or 8 times 7 is 56.
- ✓ For multiplication, line up the numbers you are multiplying.
- ✓ Start with the ones place and regroup if necessary.
- ✓ Continue with other digits.

Examples:

1) Solve. $500 \times 30 = ?$

Line up the numbers: $\frac{500}{\times\ 30}$, start with the ones place → $0 \times 500 = 0$, $\frac{500}{\times\ 30\ \ 0}$, Continue with other digit which is 3. → $500 \times 3 = 1{,}500$, $\frac{500}{\times\ 30\ \ 1{,}5000}$

2) Solve. $820 \times 25 = ?$

Line up the numbers: $\frac{820}{\times\ 25}$, start with the ones place → $5 \times 0 = 0$, $\frac{820}{\times\ 25\ \ 0}$, $5 \times 2 = 10$, write 0 and keep 1. $\frac{820}{\times\ 25\ \ 00}$, → $5 \times 8 = 40$, add 1 to 40, the answer is 41. $\frac{820}{\times\ 25\ \ 4{,}100}$

Now, write 0 in the next line and multiply 820 by 2, using the same process. (Since 2 is in the tens place, we need to write 0 before doing the operation). The answer is $16{,}400$. Add $4{,}100$ and $16{,}400$. The answer is: $4{,}100 + 16{,}400 = 20{,}500$

Find the missing number.

1) $24 \times 5 =$ _____
2) $28 \times 8 =$ _____
3) $360 \times 6 =$ _____
4) $500 \times 12 =$ _____
5) $144 \times 51 =$ _____
6) $238 \times 18 =$ _____
7) $362 \times 14 =$ _____
8) $238 \times 28 =$ _____

Whole Number Division

Step-by-step guide:

Division: A typical division problem: Dividend ÷ Divisor = Quotient

- In division, we want to find how many times a number (divisor) is contained in another number (dividend). The result in a division problem is the quotient.

✓ First, write the problem in division format. (dividend is inside; divisor is outside)

Quotient

Divisor | Dividend

✓ Now, find how many times divisor goes into dividend. (if it is a big number, break the dividend into smaller numbers by choosing the appropriate number of digits from left. Start from the first digit on the left side of the divided and see if the divisor will go into it. If not, keep moving over one digit to the right in the dividend until you have a number the divisor will go into.

✓ Find number of times the divisor goes into the part of the dividend you chose.

✓ Write the answer above the digit in the dividend you are using and multiply it by the divisor and Write the product under the part of the dividend you are using, then subtract.

✓ Bring down the next digit in the dividend and repeat this process until you have nothing left to bring down.

Example: Solve. $234 \div 4 = ?$

✓ First, write the problem in division format. $4 \overline{)\,234}$

✓ Start from left digit of the dividend. 4 doesn't go into 2. So, choose another digit of the dividend. It is 3.

✓ Now, find how many times 4 goes into 23. The answer is 5.

✓ Write 5 above the dividend part. 4 times 5 is 20. Write 20 below 23 and subtract. The answer is 3.

$$\begin{array}{r} 5 \\ 4\,\overline{)\,234} \end{array}$$

✓ Now bring down the next digit which is 4. How many times 4 goes into 34? The answer is 8. Write 8 above dividend. This is the final step since there is no other digit of the dividend to bring down. The final answer is 58 and the remainder is 2.

$$\begin{array}{r} 58 \\ 4\,\overline{)\,234} \\ -\,20 \\ \hline 34 \\ -\,32 \\ \hline 2 \end{array}$$

Solve.

1) $240 \div 5 =$ _____

2) $280 \div 4 =$ _____

3) $562 \div 8 =$ _____

4) $522 \div 9 =$ _____

5) $834 \div 8 =$ _____

6) $922 \div 12 =$ _____

7) $880 \div 15 =$ _____

8) $721 \div 22 =$ _____

Rounding and Estimates

Step-by-step guide:

Rounding and estimating are math strategies used for approximating a number. To estimate means to make a rough guess or calculation. To round means to simplify a known number by scaling it slightly up or down.

- ✓ To estimate a math operation, round the numbers.
- ✓ For 2-digit numbers, your usually can round to the nearest tens, for 3-digit numbers, round to nearest hundreds, etc.
- ✓ Find the answer.

Examples:

1) Estimate the sum by rounding each number to the nearest hundred. $\mathbf{153 + 426 =?}$
   153 rounded to the nearest hundred is 200. 426 rounded to the nearest hundred is 400.
   Then: $200 + 400 = 600$
2) Estimate the result by rounding each number to the nearest ten. $\mathbf{38 - 26 = ?}$
   38 rounded to the nearest ten is 40. 25 rounded to the nearest ten is 30.
   Then: $40 - 30 = 10$

Estimate the sum by rounding each number to the nearest ten.

1) $14 + 68 =$ _____
2) $82 + 12 =$ _____
3) $43 + 66 =$ _____
4) $47 + 69 =$ _____
5) $553 + 231 =$ _____
6) $418 + 849 =$ _____

Estimate the product by rounding each number to the nearest ten.

7) $55 \times 62 =$ _____
8) $14 \times 27 =$ _____
9) $34 \times 66 =$ _____
10) $18 \times 12 =$ _____
11) $62 \times 53 =$ _____
12) $41 \times 26 =$ _____

Answers – Day 1

Rounding

1) 80
2) 70
3) 50
4) 60
5) 80
6) 60
7) 200
8) 300
9) 700
10) 100
11) 200
12) 300

Whole Number Addition and Subtraction

1) 2,120
2) 2,233
3) 876
4) 3,284
5) 2,415
6) 5,781
7) 5,680
8) 6,814

Whole Number Multiplication

1) 120
2) 224
3) 2,160
4) 6,000
5) 7,344
6) 4,284
7) 5,068
8) 6,664

Whole Number Division

1) 48
2) 70
3) $45, r2$
4) 58
5) $104, 2$
6) $153, r4$
7) $58, r10$
8) 32,17

Rounding and Estimates

1) 80
2) 90
3) 110
4) 120
5) 780
6) 1,270
7) 3,600
8) 300
9) 2,100
10) 200
11) 3,000
12) 1,200

Day 2: 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

Step-by-step guide:

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

Examples:

1) Simplify $\frac{12}{20}$.

To simplify $\frac{12}{20}$, find a number that both 12 and 20 are divisible by. Both are divisible by 4. Then: $\frac{12}{20} = \frac{12 \div 4}{20 \div 4} = \frac{3}{5}$

2) Simplify $\frac{64}{80}$.

To simplify $\frac{64}{80}$, find a number that both 64 and 80 are divisible by. Both are divisible by 8 and 16. Then: $\frac{64}{80} = \frac{64 \div 8}{80 \div 8} = \frac{8}{10}$, 8 and 10 are divisible by 2, then: $\frac{8}{10} = \frac{4}{5}$

or $\frac{64}{80} = \frac{64 \div 16}{80 \div 16} = \frac{4}{5}$

Simplify each fraction.

1) $\frac{9}{18} =$

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

3) $\frac{6}{8} =$

4) $\frac{5}{20} =$

5) $\frac{18}{24} =$

6) $\frac{6}{9} =$

7) $\frac{12}{15} =$

8) $\frac{4}{16} =$

9) $\frac{18}{36} =$

10) $\frac{6}{42} =$

11) $\frac{13}{39} =$

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