Everything You Need to Help Achieve an Excellent Score

# ALEKS

# Math Full Study Guide

## Comprehensive Review + Practice Tests + Online Resources

2022

2023

✓ Recommended by Test Prep Experts

Reza Nazari

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# 2022 – 2023

***Comprehensive Review + Practice Tests + Online Resources***

**By**

Reza Nazari

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All inquiries should be addressed to:

info@effortlessMath.com

www.EffortlessMath.com

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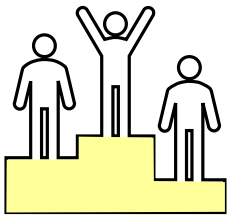
# ALEKS Math Prep 2022

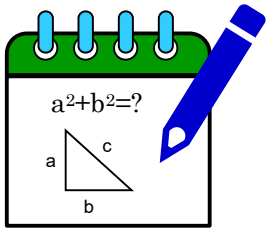


Thank you for choosing Effortless Math for your ALEKS Math test preparation and congratulations on making the decision to take the ALEKS test! It's a remarkable move you are taking, one that shouldn't be diminished in any capacity. That's why you need to use every tool possible to ensure you succeed on the test with the highest possible score, and this extensive study guide is one such tool.

If math has never been a strong subject for you, **don't worry**! This book will help you prepare for (and even ACE) the ALEKS Math test. As test day draws nearer, effective preparation becomes increasingly more important. Thankfully, you have this comprehensive study guide to help you get ready for the test. With this guide, you can feel confident that you will be more than ready for the ALEKS Math test when the time comes.

First and foremost, it is important to note that this book is a study guide and not a textbook. It is best read from cover to cover. Every lesson of this "self-guided math book" was carefully developed to ensure that you are making the most effective use of your time while preparing for the test. This up-to-date guide reflects the 2022 test guidelines and will put you on the right track to hone your math skills, overcome exam anxiety, and boost your confidence, so that you can have your best to succeed on the ALEKS Math test.





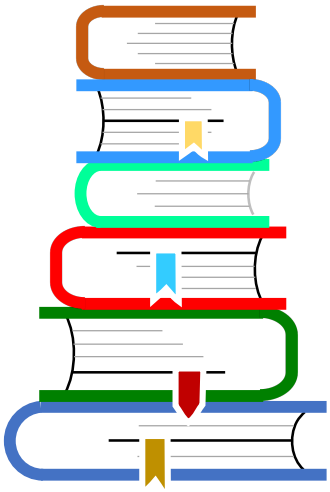

**This study guide will**:

- ☑ Explain the format of the ALEKS Math test.
- ☑ Describe specific test-taking strategies that you can use on the test.
- ☑ Provide ALEKS Math test-taking tips.
- ☑ Review all ALEKS Math concepts and topics you will be tested on.
- ☑ Help you identify the areas in which you need to concentrate your study time.
- ☑ Offer exercises that help you develop the basic math skills you will learn in each section.
- ☑ Give **2 realistic and full-length practice tests** (featuring new question types) with detailed answers to help you measure your exam readiness and build confidence.

This resource contains everything you will ever need to succeed on the ALEKS Math test. You'll get in-depth instructions on every math topic as well as tips and techniques on how to answer each question type. You'll also get plenty of practice questions to boost your test-taking confidence.

In addition, in the following pages you'll find:

- **How to Use This Book Effectively** – This section provides you with step-by-step instructions on how to get the most out of this comprehensive study guide.
- **How to study for the ALEKS Math Test** – A six-step study program has been developed to help you make the best use of this book and prepare for your ALEKS Math test. Here you'll find tips and strategies to guide your study program and help you understand ALEKS Math and how to ace the test.



- **ALEKS Math Review** – Learn everything you need to know about the ALEKS Math test.
- **ALEKS Math Test-Taking Strategies** – Learn how to effectively put these recommended test-taking techniques into use for improving your ALEKS Math score.
- **Test Day Tips** – Review these tips to make sure you will do your best when the big day comes.

## Effortless Math's ALEKS Online Center

Effortless Math Online ALEKS Center offers a complete study program, including the following:

- ✓ Step-by-step instructions on how to prepare for the ALEKS Math test
- ✓ Numerous ALEKS Math worksheets to help you measure your math skills
- ✓ Complete list of ALEKS Math formulas
- ✓ Video lessons for all ALEKS Math topics
- ✓ Full-length ALEKS Math practice tests
- ✓ And much more…

**No Registration Required.**

Visit **EffortlessMath.com/ALEKS** to find your online ALEKS Math resources.

| Topic | Adding and Subtracting Fractions | |
|---|---|---|
| **Notes** | ✓ For "like" fractions (fractions with the same denominator), add or subtract the numerators and write the answer over the common denominator.<br>✓ Find equivalent fractions with the same denominator before you can add or subtract fractions with different denominators.<br>✓ Adding and Subtracting with the same denominator: $\frac{a}{b}+\frac{c}{b}=\frac{a+c}{b}, \frac{a}{b}-\frac{c}{b}=\frac{a-c}{b}$<br>✓ Adding and Subtracting fractions with different denominators: $\frac{a}{b}+\frac{c}{d}=\frac{ad+bc}{bd}, \frac{a}{b}-\frac{c}{d}=\frac{ad-bc}{bd}$ | |
| **Example** | ***Find the sum***. $\frac{1}{3}+\frac{2}{5}=$<br>For "unlike" fractions, find equivalent fractions with the same denominator before you can add fractions with different denominators. Use this formula: $\frac{a}{b}+\frac{c}{b}=\frac{a+c}{b} \rightarrow \frac{(5)(1)+(3)(2)}{3\times5}=\frac{11}{15}$<br>***Subtract***. $\frac{6}{5}-\frac{3}{5}$<br>For like fractions, subtract and write the answer over the common denominator: $\frac{6-3}{5}=\frac{3}{5}$ | |
| **Your Turn!** | 1) $\frac{2}{7}+\frac{3}{7}=$ | 2) $\frac{7}{8}-\frac{1}{4}=$ |
| | 3) $\frac{4}{5}+\frac{1}{9}=$ | 4) $\frac{3}{7}-\frac{1}{4}=$ |
| | 5) $\frac{2}{9}+\frac{3}{4}=$ | 6) $\frac{5}{6}-\frac{2}{5}=$ |
| **Find more at** bit.ly/3nKet2X | 7) $\frac{1}{3}+\frac{3}{8}=$ | 8) $\frac{9}{11}-\frac{2}{3}=$ |

| Topic | Multiplying and Dividing Fractions | |
|---|---|---|
| Notes | ✓ Multiplying fractions: multiply the top numbers and multiply the bottom numbers.<br>✓ Dividing fractions: Keep, Change, Flip<br>Keep first fraction, change division sign to multiplication, and flip the numerator and denominator of the second fraction. Then, solve! | |
| Examples | ***Multiply***. $\frac{2}{7} \times \frac{1}{6} =$<br>Multiply the top numbers and multiply the bottom numbers.<br>$\frac{2}{7} \times \frac{1}{6} = \frac{2\times1}{7\times6} = \frac{2}{42}$, simplify: $\frac{2}{42} = \frac{2\div2}{42\div2} = \frac{1}{21}$<br><br>***Divide***. $\frac{2}{6} \div \frac{2}{3} =$<br>Keep first fraction, change division sign to multiplication, and flip the numerator and denominator of the second fraction.<br>Then: $\frac{2}{6} \div \frac{2}{3} = \frac{2}{6} \times \frac{3}{2} = \frac{2\times3}{6\times2} = \frac{6\div6}{12\div6} = \frac{1}{2}$ | |
| **Your Turn!**<br><br>**Find more at**<br>bit.ly/3haSiQW | 1) $\frac{3}{4} \times \frac{2}{3} =$ | 2) $\frac{3}{8} \div \frac{2}{3} =$ |
| | 3) $\frac{3}{8} \times \frac{4}{5} =$ | 4) $\frac{4}{5} \div \frac{4}{15} =$ |
| | 5) $\frac{1}{8} \times \frac{3}{7} =$ | 6) $\frac{5}{9} \div \frac{4}{7} =$ |
| | 7) $\frac{2}{15} \times \frac{3}{8} =$ | 8) $\frac{1}{9} \div \frac{5}{6} =$ |

| Topic | Adding Mixed Numbers | |
|---|---|---|
| Notes | Use the following steps for adding mixed numbers.<br>✓ Add whole numbers of the mixed numbers.<br>✓ Add the fractions of each mixed number.<br>✓ Find the Least Common Denominator (LCD) if necessary.<br>✓ Add whole numbers and fractions.<br>✓ Write your answer in lowest terms. | |
| Example | ***Add mixed numbers***. $1\frac{1}{2}+2\frac{2}{3}=$<br>Rewriting our equation with parts separated, $1+\frac{1}{2}+2+\frac{2}{3}$<br>Add whole numbers: $1+2=3$<br>Add fractions: $\frac{1}{2}+\frac{2}{3}=\frac{3}{6}+\frac{4}{6}=\frac{7}{6}=1\frac{1}{6}$,<br>Now, combine the whole and fraction parts: $3+1+\frac{1}{6}=4\frac{1}{6}$ | |
| **Your Turn!** | 1) $9\frac{1}{2}+5\frac{3}{4}=$ | 2) $4\frac{3}{2}+2\frac{1}{6}=$ |
| | 3) $6\frac{3}{4}+3\frac{5}{28}=$ | 4) $4\frac{2}{5}+6\frac{2}{4}=$ |
| | 5) $4\frac{6}{7}+5\frac{3}{5}=$ | 6) $3\frac{1}{6}+1\frac{2}{7}=$ |
| **Find more at**<br>bit.ly/2M4oABB | 7) $4\frac{5}{9}+2\frac{2}{7}=$ | 8) $7\frac{1}{9}+5\frac{2}{6}=$ |

| Topic | Subtracting Mixed Numbers | |
|---|---|---|
| Notes | Use the following steps for subtracting mixed numbers.<br>✓ Convert mixed numbers into improper fractions. $a\frac{c}{b}=\frac{ab+c}{b}$<br>✓ Find equivalent fractions with the same denominator for unlike fractions (fractions with different denominators)<br>✓ Subtract the second fraction from the first one.<br>✓ Write your answer in lowest terms and convert it into a mixed number if the answer is an improper fraction. | |
| Example | ***Subtract***. $9\frac{1}{2}-5\frac{1}{4}=$<br>Convert mixed numbers into fractions: $9\frac{1}{2}=\frac{9\times2+1}{2}=\frac{19}{2}$ and $5\frac{1}{4}=\frac{5\times4+1}{4}=\frac{21}{4}$, these two fractions are "unlike" fractions. (they have different denominators). Find equivalent fractions with the same denominator. Use this formula: $\frac{a}{b}-\frac{c}{d}=\frac{ad-bc}{bd}$<br>$\frac{19}{2}-\frac{21}{4}=\frac{(19)(4)-(21)(2)}{2\times4}=\frac{76-42}{8}=\frac{34}{8}$, the answer is an improper fraction, convert it into a mixed number. $\frac{34}{8}=4\frac{2}{8}=4\frac{1}{4}$ | |
| **Your Turn!**<br>**Find more at**<br>bit.ly/3aD3KDG | 1) $3\frac{3}{4}-1\frac{1}{2}=$ | 2) $2\frac{4}{9}-1\frac{2}{3}=$ |
| | 3) $5\frac{1}{6}-2\frac{5}{12}=$ | 4) $5\frac{1}{3}-1\frac{3}{4}=$ |
| | 5) $4\frac{5}{6}-1\frac{1}{8}=$ | 6) $7\frac{3}{4}-1\frac{2}{3}=$ |
| | 7) $9\frac{5}{6}-5\frac{1}{5}=$ | 8) $4\frac{1}{4}-3\frac{7}{9}=$ |

| Topic | Multiplying Mixed Numbers | |
|---|---|---|
| Notes | ✓ Convert the mixed numbers into fractions. $a\frac{c}{b} = a + \frac{c}{b} = \frac{ab+c}{b}$<br>✓ Multiply fractions and simplify if necessary. $\frac{a}{b} \times \frac{c}{d} = \frac{a \times c}{b \times d}$<br>✓ If the answer is an improper fraction (numerator is bigger than denominator), convert it into a mixed number. | |
| Example | ***Multiply*** $2\frac{1}{2} \times 4\frac{1}{3}$<br>Convert mixed numbers into fractions: $2\frac{1}{2} = \frac{2\times2+1}{2} = \frac{5}{2}$ and $4\frac{1}{3} = \frac{4\times3+1}{3} = \frac{13}{3}$<br>Multiply two fractions: $\frac{5}{2} \times \frac{13}{3} = \frac{5\times13}{2\times3} = \frac{65}{6}$<br>The answer is an improper fraction. Convert it into a mixed number:<br>$\frac{65}{6} = 10\frac{5}{6}$ | |
| **Your Turn!** | 1) $2\frac{2}{3} \times 1\frac{2}{3} =$ | 2) $4\frac{1}{5} \times 2\frac{2}{3} =$ |
| | 3) $3\frac{3}{5} \times 3\frac{2}{3} =$ | 4) $3\frac{1}{2} \times 4\frac{1}{3} =$ |
| | 5) $5\frac{3}{4} \times 2\frac{1}{5} =$ | 6) $6\frac{3}{7} \times 9\frac{1}{4} =$ |
| **Find more at**<br>bit.ly/3aPy7XJ | 7) $4\frac{4}{5} \times 3\frac{2}{3} =$ | 8) $5\frac{1}{6} \times 3\frac{1}{4} =$ |

| Topic | Dividing Mixed Numbers | |
|---|---|---|
| **Notes** | ✓ Convert the mixed numbers into improper fractions.<br>$a\frac{c}{b} = a + \frac{c}{b} = \frac{ab + c}{b}$<br>✓ Divide fractions and simplify if necessary. | |
| **Example** | ***Solve.*** $1\frac{1}{2} \div 3\frac{1}{8} =$<br>Converting mixed numbers to fractions: $1\frac{1}{2} \div 3\frac{1}{8} = \frac{3}{2} \div \frac{25}{8}$<br>Keep, Change, Flip: $\frac{3}{2} \div \frac{25}{8} = \frac{3}{2} \times \frac{8}{25} = \frac{3\times8}{2\times25} = \frac{24}{50} = \frac{12}{25}$ | |
| **Your Turn!** | 1) $6\frac{1}{2} \div 2\frac{1}{4} =$ | 2) $3\frac{1}{3} \div 2\frac{3}{5} =$ |
| | 3) $2\frac{3}{4} \div 1\frac{1}{2} =$ | 4) $6\frac{2}{3} \div 4\frac{3}{4} =$ |
| | 5) $1\frac{1}{3} \div 8\frac{2}{3} =$ | 6) $8\frac{1}{4} \div 4\frac{1}{2} =$ |
| | 7) $2\frac{4}{5} \div 3\frac{2}{9} =$ | 8) $8\frac{3}{4} \div 2\frac{5}{8} =$ |
| **Find more at**<br>bit.ly/2KLPk9k | 9) $4\frac{1}{6} \div 2\frac{5}{3} =$ | 10) $4\frac{3}{8} \div 4\frac{1}{4} =$ |