Everything You Need to Help Achieve an Excellent Score

TSI

Math Full Study Guide

Comprehensive Review + Practice Tests + Online Resources

2022

2023

✓ Recommended by Test Prep Experts

Reza Nazari

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?

Please visit www.EffortlessMath.com

TSI Math Full Study Guide
2022 - 2023

Comprehensive Review + Practice Tests + Online Resources

By

Reza Nazari

Copyright © 2021

Effortless Math Education Inc.

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.

Effortless Math provides unofficial test prep products for a variety of tests and exams. It is not affiliated with or endorsed by any official organizations.

All inquiries should be addressed to:

info@effortlessMath.com

www.EffortlessMath.com

ISBN: 978-1-63719-100-2

Published by: Effortless Math Education Inc.

www.EffortlessMath.com

Visit www.EffortlessMath.com
for Online Math Practice

Welcome to
TSI Math Prep
2022

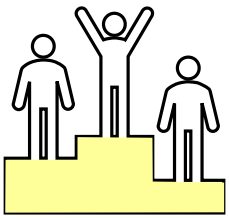


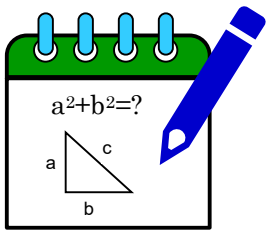


Thank you for choosing Effortless Math for your TSI Math test preparation and congratulations on making the decision to take the TSI test! It's a remarkable move you are taking, one that shouldn't be diminished in any capacity. That's why you need to use every tool possible to ensure you succeed on the 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 TSI test's math section. 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 TSI 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 TSI Math test.



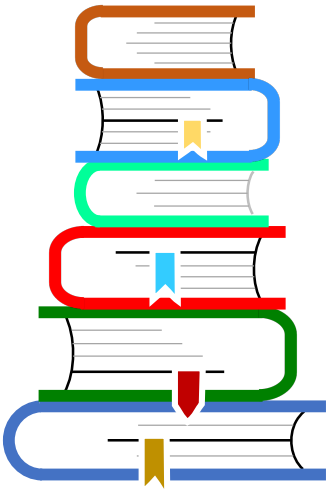


This study guide will:

- ☑ Explain the format of the TSI Math test.
- ☑ Describe specific test-taking strategies that you can use on the test.
- ☑ Provide TSI Math test-taking tips.
- ☑ Review all TSI 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 TSI 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 TSI Math Test** – A six-step study program has been developed to help you make the best use of this book and prepare for your TSI Math test. Here you'll find tips and strategies to guide your study program and help you understand TSI Math and how to ace the test.

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

Effortless Math's TSI Online Center

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

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

No Registration Required.

Visit EffortlessMath.com/TSI to find your online TSI 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. ✓ 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: $\frac{a}{b}+\frac{c}{d}=\frac{ad+bc}{bd}, \frac{a}{b}-\frac{c}{d}=\frac{ad-bc}{bd}$	
Example	***Find the sum***. $\frac{1}{3}+\frac{2}{5}=$ For "unlike" fractions, find equivalent fractions with the same denominator before you can add fractions with different denominators. Use this formula: $\frac{a}{b}+\frac{c}{b}=\frac{a+c}{b} \rightarrow \frac{(5)(1)+(3)(2)}{3\times5}=\frac{11}{15}$ ***Subtract***. $\frac{6}{5}-\frac{3}{5}$ For like fractions, subtract and write the answer over the common denominator: $\frac{6-3}{5}=\frac{3}{5}$	
Your Turn! **Find more at** bit.ly/3nKet2X	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) $\frac{5}{6}-\frac{2}{5}=$
	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. ✓ 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!	
Examples	***Multiply***. $\frac{2}{7} \times \frac{1}{6} =$ Multiply the top numbers and multiply the bottom numbers. $\frac{2}{7} \times \frac{1}{6} = \frac{2\times1}{7\times6} = \frac{2}{42}$, simplify: $\frac{2}{42} = \frac{2\div2}{42\div2} = \frac{1}{21}$ ***Divide***. $\frac{2}{6} \div \frac{2}{3} =$ Keep first fraction, change division sign to multiplication, and flip the numerator and denominator of the second fraction. 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! **Find more at** 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. ✓ Add whole numbers of the mixed numbers. ✓ Add the fractions of each mixed number. ✓ Find the Least Common Denominator (LCD) if necessary. ✓ Add whole numbers and fractions. ✓ Write your answer in lowest terms.	
Example	***Add mixed numbers***. $1\frac{1}{2}+2\frac{2}{3}=$ Rewriting our equation with parts separated, $1+\frac{1}{2}+2+\frac{2}{3}$ Add whole numbers: $1+2=3$ Add fractions: $\frac{1}{2}+\frac{2}{3}=\frac{3}{6}+\frac{4}{6}=\frac{7}{6}=1\frac{1}{6}$, 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 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. ✓ Convert mixed numbers into improper fractions. $a\frac{c}{b}=\frac{ab+c}{b}$ ✓ Find equivalent fractions with the same denominator for unlike fractions (fractions with different denominators) ✓ Subtract the second fraction from the first one. ✓ Write your answer in lowest terms and convert it into a mixed number if the answer is an improper fraction.	
Example	***Subtract***. $9\frac{1}{2}-5\frac{1}{4}=$ 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: $\frac{a}{b}-\frac{c}{d}=\frac{ad-bc}{bd}$ $\frac{19}{2}-\frac{21}{4}=\frac{(19)(4)-(21)(2)}{2\times4}=\frac{76-42}{8}=\frac{34}{8}$, 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! **Find more at** 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. $a\frac{c}{b} = a + \frac{c}{b} = \frac{ab+c}{b}$ ✓ Multiply fractions and simplify if necessary. $\frac{a}{b} \times \frac{c}{d} = \frac{a \times c}{b \times d}$ ✓ If the answer is an improper fraction (numerator is bigger than denominator), convert it into a mixed number.
Example	***Multiply*** $2\frac{1}{2} \times 4\frac{1}{3}$ Convert mixed numbers into fractions: $2\frac{1}{2} = \frac{2\times2+1}{2} = \frac{5}{2}$ and $4\frac{1}{3} = \frac{4\times3+1}{3} = \frac{13}{3}$ Multiply two fractions: $\frac{5}{2} \times \frac{13}{3} = \frac{5\times13}{2\times3} = \frac{65}{6}$ The answer is an improper fraction. Convert it into a mixed number: $\frac{65}{6} = 10\frac{5}{6}$

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 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. $a\frac{c}{b} = a + \frac{c}{b} = \frac{ab + c}{b}$ ✓ Divide fractions and simplify if necessary.	
Example	***Solve.*** $1\frac{1}{2} \div 3\frac{1}{8} =$ Converting mixed numbers to fractions: $1\frac{1}{2} \div 3\frac{1}{8} = \frac{3}{2} \div \frac{25}{8}$ 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 bit.ly/2KLPk9k	9) $4\frac{1}{6} \div 2\frac{5}{3} =$	10) $4\frac{3}{8} \div 4\frac{1}{4} =$

Chapter 1: Answers

Simplifying Fractions

1) $\frac{1}{3}$
2) $\frac{1}{4}$
3) $\frac{1}{3}$
4) $\frac{1}{4}$
5) $\frac{2}{9}$
6) $\frac{1}{6}$
7) $\frac{3}{8}$
8) $\frac{3}{8}$
9) $\frac{7}{13}$
10) $\frac{9}{22}$

Adding and Subtracting Fractions

1) $\frac{5}{7}$
2) $\frac{5}{8}$
3) $\frac{41}{45}$
4) $\frac{5}{28}$
5) $\frac{35}{36}$
6) $\frac{13}{30}$
7) $\frac{17}{24}$
8) $\frac{5}{33}$

Multiplying and Dividing Fractions

1) $\frac{1}{2}$
2) $\frac{9}{16}$
3) $\frac{3}{10}$
4) 3
5) $\frac{3}{56}$
6) $\frac{35}{36}$
7) $\frac{1}{20}$
8) $\frac{2}{15}$

Adding Mixed Numbers

1) $15\frac{1}{4}$
2) $7\frac{2}{3}$
3) $9\frac{13}{14}$
4) $10\frac{9}{10}$
5) $10\frac{16}{35}$
6) $4\frac{19}{42}$
7) $6\frac{53}{63}$
8) $12\frac{4}{9}$

Subtracting Mixed Numbers

1) $2\frac{1}{4}$
2) $\frac{7}{9}$
3) $2\frac{3}{4}$
4) $3\frac{7}{12}$
5) $3\frac{17}{24}$
6) $6\frac{1}{12}$
7) $4\frac{19}{30}$
8) $\frac{17}{36}$

Multiplying Mixed Numbers

1) $4\frac{4}{9}$
2) $11\frac{1}{5}$
3) $13\frac{1}{5}$
4) $15\frac{1}{16}$
5) $12\frac{13}{20}$
6) $59\frac{13}{28}$
7) $17\frac{3}{5}$
8) $16\frac{19}{24}$

Dividing Mixed Numbers

1) $2\frac{8}{9}$
2) $1\frac{11}{39}$
3) $1\frac{5}{6}$
4) $1\frac{23}{57}$
5) $\frac{2}{13}$
6) $1\frac{5}{6}$
7) $\frac{126}{145}$
8) $3\frac{1}{3}$
9) $1\frac{3}{22}$
10) $1\frac{1}{34}$

CHAPTER

2 Decimals

Math topics that you'll learn in this chapter:



- ✓ Comparing Decimals
- ✓ Rounding Decimals
- ✓ Adding and Subtracting Decimals
- ✓ Multiplying and Dividing Decimals