The Ultimate Step by Step Guide to Preparing for the TSI Math Test

Test taker's #1 Choice

# TSI Math 2022

# for Beginners

Reza Nazari

✓ Recommended by Test Prep Experts

# TSI MATH FOR BEGINNERS

## The Ultimate Step by Step Guide to Preparing for the TSI Math Test

**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:** 978-1-64612-956-0

Published by: **Effortless Math Education Inc.**

**For Online Math Practice Visit www.EffortlessMath.com**

# *Welcome to*

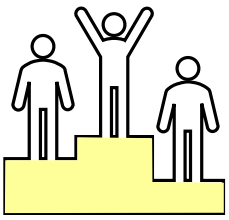
# TSI Math Prep

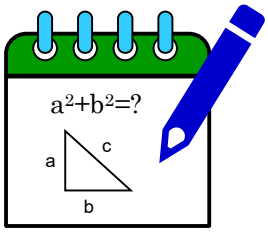
## 2022

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.



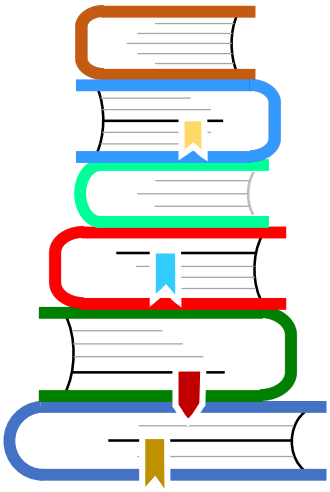



**This study guide will**:

- ☑ 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…

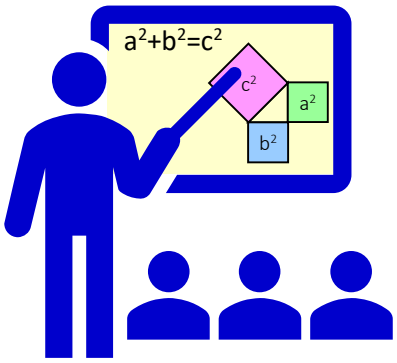
**No Registration Required.**

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

# How to Use This Book Effectively

Look no further when you need a study guide to improve your math skills to succeed on the math portion of the TSI test. Each chapter of this comprehensive guide to the TSI Math will provide you with the knowledge, tools, and understanding needed for every topic covered on the test.

It's imperative that you understand each topic before moving onto another one, as that's the way to guarantee your success. Each chapter provides you with examples and a step-by-step guide of every concept to better understand the content that will be on the test. To get the best possible results from this book:



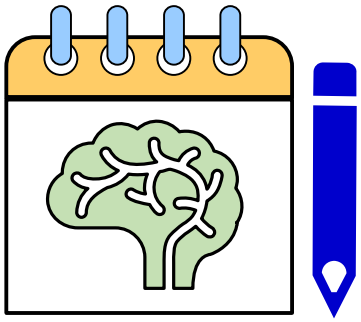

- **Begin studying long before your test date**. This provides you ample time to learn the different math concepts. The earlier you begin studying for the test, the sharper your skills will be. Do not procrastinate! Provide yourself with plenty of time to learn the concepts and feel comfortable that you understand them when your test date arrives.
- **Practice consistently**. Study TSI Math concepts at least 20 to 30 minutes a day. Remember, slow and steady wins the race, which can be applied to preparing for the TSI Math test. Instead of cramming to tackle everything at once, be patient and learn the math topics in short bursts.
- Whenever you get a math problem wrong, **mark it off, and review it later** to make sure you understand the concept.
- Start each session by **looking over the previous material.**
- Once you've reviewed the book's lessons, **take a practice test at the back of the book** to gauge your level of readiness. Then, review your results. Read detailed answers and solutions for each question you missed.
- **Take another practice test** to get an idea of how ready you are to take the actual exam. Taking the practice tests will give you the confidence you need on test day. Simulate the TSI testing environment by sitting in a quiet room free from distraction. Make sure to clock yourself with a timer.

# How to Study for the TSI Math Test

Studying for the TSI Math test can be a really daunting and boring task. What's the best way to go about it? Is there a certain study method that works better than others? Well, studying for the TSI Math can be done effectively. The following six-step program has been designed to make preparing for the TSI Math test more efficient and less overwhelming.

**Step 1** - Create a study plan
**Step 2** - Choose your study resources
**Step 3** - Review, Learn, Practice
**Step 4** - Learn and practice test-taking strategies
**Step 5** - Learn the TSI Test format and take practice tests
**Step 6** - Analyze your performance

## Step 1: Create a Study Plan



It's always easier to get things done when you have a plan. Creating a study plan for the TSI Math test can help you to stay on track with your studies. It's important to sit down and prepare a study plan with what works with your life, work, and any other obligations you may have. Devote enough time each day to studying. It's also a great idea to break down each section of the exam into blocks and study one concept at a time.

It's important to understand that there is no "right" way to create a study plan. Your study plan will be personalized based on your specific needs and learning style.

Follow these guidelines to create an effective study plan for your TSI Math test:

- ★ **Analyze your learning style and study habits** – Everyone has a different learning style. It is essential to embrace your individuality and the unique way you learn. Think about what works and what doesn't work for you. Do you prefer TSI Math prep books or a combination of textbooks and video lessons? Does it work better for you if you study every night for

# Adding Mixed Numbers

Use the following steps for adding mixed numbers:

- Add whole numbers of the mixed numbers.
- Add the fractions of the mixed numbers.
- Find the Least Common Denominator (LCD) if necessary.
- Add whole numbers and fractions.
- Write your answer in lowest terms.

## Examples:

**Example 1.** Add mixed numbers. $2\frac{1}{2}+1\frac{2}{3}=$

***Solution***: Let's rewriting our equation with parts separated, $2\frac{1}{2}+1\frac{2}{3}=2+\frac{1}{2}+1+\frac{2}{3}$.
Now, add whole number parts: $2+1=3$
Add the fraction parts $\frac{1}{2}+\frac{2}{3}$. Rewrite to solve with the equivalent fractions. $\frac{1}{2}+\frac{2}{3}=\frac{3}{6}+\frac{4}{6}=\frac{7}{6}$. The answer is an improper fraction (numerator is bigger than denominator). Convert the improper fraction into a mixed number: $\frac{7}{6}=1\frac{1}{6}$. Now, combine the whole and fraction parts: $3+1\frac{1}{6}=4\frac{1}{6}$

**Example 2.** Find the sum. $1\frac{3}{4}+2\frac{1}{2}=$

***Solution***: Rewriting our equation with parts separated, $1+\frac{3}{4}+2+\frac{1}{2}$. Add the whole number parts:
$1+2=3$. Add the fraction parts: $\frac{3}{4}+\frac{1}{2}=\frac{3}{4}+\frac{2}{4}=\frac{5}{4}$
Convert the improper fraction into a mixed number: $\frac{5}{4}=1\frac{1}{4}$.
Now, combine the whole and fraction parts: $3+1\frac{1}{4}=4\frac{1}{4}$

bit.ly/2M4oABB
Find more at

# Subtracting Mixed Numbers

Use these 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. $\frac{a}{b} - \frac{c}{d} = \frac{ad-bc}{bd}$
- Write your answer in lowest terms.
- If the answer is an improper fraction, convert it into a mixed number.

## Examples:

**Example 1.** Subtract. $2\frac{1}{3} - 1\frac{1}{2} =$

***Solution***: Convert mixed numbers into fractions: $2\frac{1}{3} = \frac{2\times3+1}{3} = \frac{7}{3}$ and $1\frac{1}{2} = \frac{1\times2+1}{2} = \frac{3}{2}$

These two fractions are "unlike" fractions. (they have different denominators). Find equivalent fractions with the same denominator. Use this formula: $\frac{a}{b} - \frac{c}{d} = \frac{ad-bc}{bd}$

$\frac{7}{3} - \frac{3}{2} = \frac{(7)(2)-(3)(3)}{3\times2} = \frac{14-9}{6} = \frac{5}{6}$

**Example 2.** Find the difference. $3\frac{4}{7} - 2\frac{3}{4} =$

***Solution***: Convert mixed numbers into fractions: $3\frac{4}{7} = \frac{3\times7+4}{7} = \frac{25}{7}$ and $2\frac{3}{4} = \frac{2\times4+3}{4} = \frac{11}{4}$

Then: $3\frac{4}{7} - 2\frac{3}{4} = \frac{25}{7} - \frac{11}{4} = \frac{(25)(4)-(11)(7)}{7\times4} = \frac{23}{28}$

bit.ly/3aD3KDG
Find more at



# Multiplying Mixed Numbers

Use the following steps for multiplying mixed numbers:

- Convert the mixed numbers into fractions. $a\frac{c}{b} = a + \frac{c}{b} = \frac{ab+c}{b}$
- Multiply fractions. $\frac{a}{b} \times \frac{c}{d} = \frac{a \times c}{b \times d}$
- Write your answer in lowest terms.
- If the answer is an improper fraction (numerator is bigger than denominator), convert it into a mixed number.

## Examples:

**Example 1.** Multiply. $4\frac{1}{2} \times 2\frac{2}{5} =$

***Solution***: Convert mixed numbers into fractions, $4\frac{1}{2} = \frac{4\times2+1}{2} = \frac{9}{2}$ and $2\frac{2}{5} = \frac{2\times5+2}{5} = \frac{12}{5}$. Apply the fractions rule for multiplication: $\frac{9}{2} \times \frac{12}{5} = \frac{9\times12}{2\times5} = \frac{108}{10} = \frac{54}{5}$
The answer is an improper fraction. Convert it into a mixed number. $\frac{54}{5} = 10\frac{4}{5}$

**Example 2.** Multiply. $3\frac{2}{3} \times 2\frac{5}{6} =$

***Solution***: Converting mixed numbers into fractions, $3\frac{2}{3} \times 2\frac{5}{6} = \frac{11}{3} \times \frac{17}{6}$
Apply the fractions rule for multiplication: $\frac{11}{3} \times \frac{17}{6} = \frac{11\times17}{3\times6} = \frac{187}{18} = 10\frac{7}{18}$

**Example 3.** Find the product. $5\frac{1}{4} \times 3\frac{3}{8} =$

***Solution***: Convert mixed numbers to fractions: $5\frac{1}{4} = \frac{21}{4}$ and $3\frac{3}{8} = \frac{27}{8}$. Multiply two fractions:

$\frac{21}{4} \times \frac{27}{8} = \frac{21\times27}{4\times8} = \frac{567}{32} = 17\frac{23}{32}$

bit.ly/3aPy7XJ
Find more at

# Dividing Mixed Numbers

Use the following steps for dividing mixed numbers:

- Convert the mixed numbers into fractions. $a\frac{c}{b} = a + \frac{c}{b} = \frac{ab+c}{b}$
- Divide fractions: Keep, Change, Flip: Keep the first fraction, change the division sign to multiplication, and flip the numerator and denominator of the second fraction. Then, solve! $\frac{a}{b} \div \frac{c}{d} = \frac{a}{b} \times \frac{d}{c} = \frac{a \times d}{b \times c}$
- Write your answer in lowest terms.
- If the answer is an improper fraction (numerator is bigger than denominator), convert it into a mixed number.

## Examples:

**Example 1.** Solve. $2\frac{1}{3} \div 1\frac{1}{2}$

***Solution***: Convert mixed numbers into fractions: $2\frac{1}{3} = \frac{2\times3+1}{3} = \frac{7}{3}$ and $1\frac{1}{2} = \frac{1\times2+1}{2} = \frac{3}{2}$
Keep, Change, Flip: $\frac{7}{3} \div \frac{3}{2} = \frac{7}{3} \times \frac{2}{3} = \frac{7\times2}{3\times3} = \frac{14}{9}$. The answer is an improper fraction. Convert it into a mixed number: $\frac{14}{9} = 1\frac{5}{9}$

**Example 2.** Solve. $3\frac{3}{4} \div 2\frac{2}{5}$

***Solution***: Convert mixed numbers to fractions, then solve:
$3\frac{3}{4} \div 2\frac{2}{5} = \frac{15}{4} \div \frac{12}{5} = \frac{15}{4} \times \frac{5}{12} = \frac{75}{48} = 1\frac{9}{16}$

**Example 3.** Solve. $2\frac{4}{5} \div 1\frac{2}{3}$

***Solution***: Converting mixed numbers to fractions: $2\frac{4}{5} \div 1\frac{2}{3} = \frac{14}{5} \div \frac{5}{3}$
Keep, Change, Flip: $\frac{14}{5} \div \frac{5}{3} = \frac{14}{5} \times \frac{3}{5} = \frac{14\times3}{5\times5} = \frac{42}{25} = 1\frac{17}{25}$

bit.ly/2KLPk9k
Find more at

# Chapter 1: Practices

## Simplify each fraction.

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

2) $\frac{5}{15} =$

3) $\frac{10}{90} =$

4) $\frac{12}{16} =$

5) $\frac{25}{45} =$

6) $\frac{42}{54} =$

7) $\frac{48}{60} =$

8) $\frac{52}{169} =$

## Find the sum or difference.

9) $\frac{3}{10} + \frac{2}{10} =$

10) $\frac{4}{9} - \frac{1}{9} =$

11) $\frac{2}{3} + \frac{6}{15} =$

12) $\frac{17}{24} - \frac{5}{8} =$

13) $\frac{7}{54} - \frac{1}{9} =$

14) $\frac{4}{5} - \frac{1}{6} =$

15) $\frac{6}{7} - \frac{3}{8} =$

16) $\frac{2}{13} + \frac{1}{4} =$

## Find the products or quotients.

17) $\frac{2}{9} \div \frac{4}{3} =$

18) $\frac{14}{5} \div \frac{28}{35} =$

19) $\frac{9}{25} \times \frac{5}{27} =$

20) $\frac{65}{72} \times \frac{12}{15} =$

## Find the sum.

21) $2\frac{1}{5} + 1\frac{2}{5} =$

22) $5\frac{1}{9} + 2\frac{7}{9} =$

23) $2\frac{3}{4} + 1\frac{1}{8} =$

24) $2\frac{2}{7} + 4\frac{1}{21} =$

25) $5\frac{3}{5} + 1\frac{4}{9} =$

26) $3\frac{3}{11} + 4\frac{6}{7} =$

## Find the difference.

27) $5\frac{1}{3} - 4\frac{2}{3} =$

28) $4\frac{7}{10} - 1\frac{3}{10} =$

29) $3\frac{1}{3} - 2\frac{2}{9} =$

30) $6\frac{1}{2} - 3\frac{1}{3} =$

31) $4\frac{3}{4} - 2\frac{1}{28} =$

32) $4\frac{2}{7} - 3\frac{1}{6} =$

33) $5\frac{3}{10} - 3\frac{3}{4} =$

34) $6\frac{9}{20} - 2\frac{1}{3} =$

## Find the products.

35) $1\frac{1}{2} \times 2\frac{3}{7} =$

36) $1\frac{3}{4} \times 1\frac{3}{5} =$

37) $4\frac{1}{2} \times 1\frac{5}{6} =$

38) $1\frac{2}{7} \times 3\frac{1}{5} =$

39) $2\frac{1}{5} \times 5\frac{1}{2} =$

40) $2\frac{1}{2} \times 4\frac{4}{5} =$

41) $3\frac{1}{5} \times 4\frac{1}{2} =$

42) $4\frac{9}{10} \times 4\frac{1}{2} =$

## Solve.

43) $1\frac{1}{3} \div 1\frac{2}{3} =$

44) $2\frac{1}{4} \div 1\frac{1}{2} =$

45) $5\frac{1}{3} \div 3\frac{1}{2} =$

46) $3\frac{2}{7} \div 1\frac{1}{8} =$

47) $4\frac{1}{5} \div 2\frac{2}{3} =$

48) $1\frac{2}{3} \div 1\frac{3}{8} =$

49) $4\frac{1}{2} \div 2\frac{2}{3} =$

50) $1\frac{2}{11} \div 1\frac{1}{8} =$

# Chapter 1: Answers

1) $\frac{1}{4}$
2) $\frac{1}{3}$
3) $\frac{1}{9}$
4) $\frac{3}{4}$
5) $\frac{5}{9}$
6) $\frac{7}{9}$
7) $\frac{4}{5}$
8) $\frac{4}{13}$
9) $\frac{1}{2}$
10) $\frac{1}{3}$
11) $\frac{16}{15} = 1\frac{1}{15}$
12) $\frac{1}{12}$
13) $\frac{1}{54}$
14) $\frac{19}{30}$
15) $\frac{27}{56}$
16) $\frac{21}{52}$
17) $\frac{1}{6}$
18) $\frac{7}{2} = 3\frac{1}{2}$
19) $\frac{1}{15}$
20) $\frac{13}{18}$
21) $3\frac{3}{5}$
22) $7\frac{8}{9}$
23) $3\frac{7}{8}$
24) $6\frac{1}{3}$
25) $7\frac{2}{45}$
26) $8\frac{10}{77}$
27) $\frac{2}{3}$
28) $3\frac{2}{5}$
29) $1\frac{1}{9}$
30) $3\frac{1}{6}$
31) $2\frac{5}{7}$
32) $1\frac{5}{42}$
33) $1\frac{11}{20}$
34) $4\frac{7}{60}$
35) $3\frac{9}{14}$
36) $2\frac{4}{5}$
37) $8\frac{1}{4}$
38) $4\frac{4}{35}$
39) $12\frac{1}{10}$
40) $12$
41) $14\frac{2}{5}$
42) $22\frac{1}{20}$
43) $\frac{4}{5}$
44) $1\frac{1}{2}$
45) $1\frac{11}{21}$
46) $2\frac{58}{63}$
47) $1\frac{23}{40}$
48) $1\frac{7}{33}$
49) $1\frac{11}{16}$
50) $1\frac{5}{99}$

CHAPTER

# 2 Decimals

Math topics that you'll learn in this chapter:



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