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SAT Math in 30 Days

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SAT Math

in 30 Days!

The Most Effective SAT Math Crash Course

By

Reza Nazari

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Welcome to
SAT Math Prep
2021

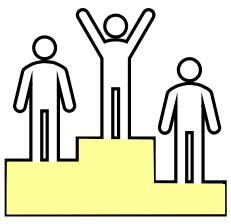


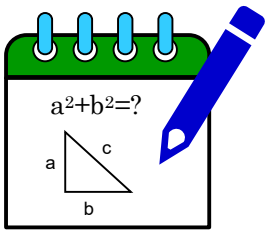


Thank you for choosing Effortless Math for your SAT Math test preparation and congratulations on making the decision to take the SAT test! It's a remarkable move you are taking, one that shouldn't be diminished in any capacity. That's why you need to use every tool possible to ensure you succeed on the 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 SAT 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 SAT 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 2021 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 SAT Math test.

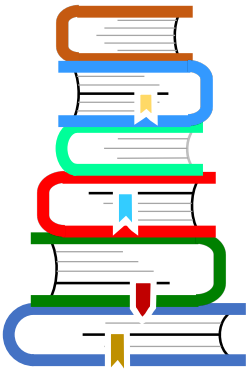




This study guide will:

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

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

Effortless Math's SAT Online Center

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

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

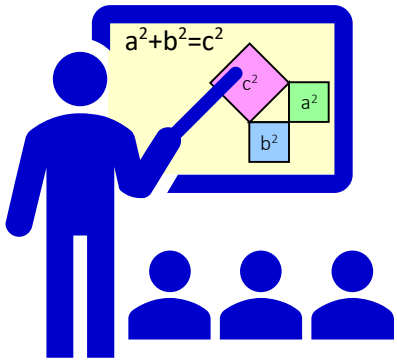
No Registration Required.

Visit EffortlessMath.com/SAT to find your online SAT 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 SAT test. Each chapter of this comprehensive guide to the SAT 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:



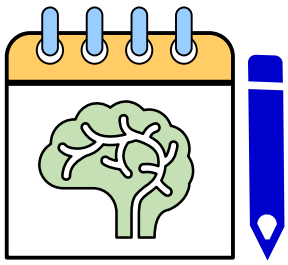
- **Begin studying long before your test date**. This provides you ample time to learn the different math concepts. The earlier you begin studying for the test, the sharper your skills will be. Do not procrastinate! Provide yourself with plenty of time to learn the concepts and feel comfortable that you understand them when your test date arrives.
- **Practice consistently**. Study SAT 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 SAT 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 related 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 SAT testing environment by sitting in a quiet room free from distraction. Make sure to clock yourself with a timer.

How to Study for the SAT Math Test

Studying for the SAT 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 SAT Math can be done effectively. The following six-step program has been designed to make preparing for the SAT 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 SAT 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 SAT 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 SAT 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 SAT Math prep books or a combination of textbooks and video lessons? Does it work better for you if you study every night for thirty minutes or is it more effective to study in the morning before going to work?

- ★ **Evaluate your schedule** – Review your current schedule and find out how much time you can consistently devote to SAT Math study.
- ★ **Develop a schedule** – Now it's time to add your study schedule to your calendar like any other obligation. Schedule time for study, practice, and review. Plan out which topic you will study on which day to ensure that you're devoting enough time to each concept. Develop a study plan that is mindful, realistic, and flexible.
- ★ **Stick to your schedule** – A study plan is only effective when it is followed consistently. You should try to develop a study plan that you can follow for the length of your study program.
- ★ **Evaluate your study plan and adjust as needed** – Sometimes you need to adjust your plan when you have new commitments. Check in with yourself regularly to make sure that you're not falling behind in your study plan. Remember, the most important thing is sticking to your plan. Your study plan is all about helping you be more productive. If you find that your study plan is not as effective as you want, don't get discouraged. It's okay to make changes as you figure out what works best for you.

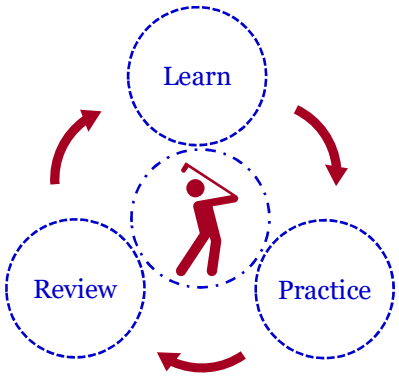
STEP 2: Choose Your Study Resources



There are numerous textbooks and online resources available for the SAT Math test, and it may not be clear where to begin. Don't worry! This study guide provides everything you need to fully prepare for your SAT Math test. In addition to the book content, you can also use Effortless Math's online resources. (video lessons, worksheets, formulas, etc.) On each page, there is a link (and a QR code) to an online webpage which provides a comprehensive review of the topic, step-by-step instruction, video tutorial, and numerous examples and exercises to help you fully understand the concept.

Simply visit EffortlessMath.com/SAT to find your online SAT Math resources.

STEP 3: Review, Learn, Practice

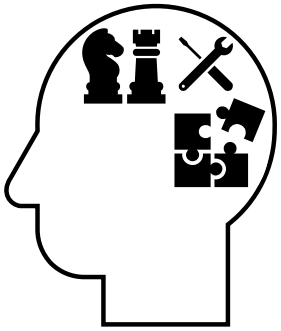


This SAT Math study guide breaks down each subject into specific skills or content areas. For instance, the percent concept is separated into different topics–percent calculation, percent increase and decrease, percent problems, etc. Use this book to help you go over all key math concepts and topics on the SAT Math test.

As you read each chapter, take notes or highlight the concepts you would like to go over again in the future. If you're unfamiliar with a topic or something is difficult for you, do additional research on it. For each math topic, plenty of instructions, step-by-step guides, and examples are provided to ensure you get a good grasp of the material. You can also find video lessons on the Effortless Math website for each SAT Math concept.

Quickly review the topics you do understand to get a brush-up of the material. Be sure to do the practice questions provided at the end of every chapter to measure your understanding of the concepts.

STEP 4: Learn and Practice Test-taking Strategies



This SAT Math study guide breaks down each subject into specific skills or content areas. For instance, the percent concept is separated into different topics–percent calculation, percent increase and decrease, percent problems, etc. Use this study guide and Effortless Math online SAT center to help you go over all key math concepts and topics on the SAT Math test.

Adding and Subtracting Fractions

☆ For "like" fractions (fractions with the same denominator), add or subtract the numerators (top numbers) and write the answer over the common denominator (bottom numbers).

☆ Adding and Subtracting fractions with the same denominator:

$$\frac{a}{b}+\frac{c}{b}=\frac{a+c}{b} \qquad \frac{a}{b}-\frac{c}{b}=\frac{a-c}{b}$$

☆ Find equivalent fractions with the same denominator before you can add or subtract fractions with different denominators.

☆ Adding and Subtracting fractions with different denominators:

$$\frac{a}{b}+\frac{c}{d}=\frac{ad+bc}{bd} \qquad \frac{a}{b}-\frac{c}{d}=\frac{ad-bc}{bd}$$

Examples:

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

***Solution*:** These two fractions are "unlike" fractions. (they have different denominators). Use this formula: $\frac{a}{b}+\frac{c}{d}=\frac{ad+c}{bd}$

Then: $\frac{1}{4}+\frac{2}{3}=\frac{(1)(3)+(2)(4)}{4\times 3}=\frac{3+8}{12}=\frac{11}{12}$

Example 2. Find the difference. $\frac{5}{6}-\frac{2}{5}=$

***Solution*:** For "unlike" fractions, find equivalent fractions with the same denominator before you can add or subtract fractions with different denominators. Use this formula: $\frac{a}{b}-\frac{c}{d}=\frac{ad-\mathrm{b}c}{bd}$

$\frac{5}{6}-\frac{2}{5}=\frac{(5)(5)-(2)(6)}{6\times 5}=\frac{25-12}{30}=\frac{13}{30}$

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Multiplying and Dividing Fractions

☆ Multiplying fractions: multiply the top numbers and multiply the bottom numbers. Simplify if necessary. $\frac{a}{b} \times \frac{c}{d} = \frac{a \times c}{b \times d}$

☆ Dividing 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!

$$\frac{a}{b} \div \frac{c}{d} = \frac{a}{b} \times \frac{d}{c} = \frac{a \times d}{b \times c}$$

Examples:

Example 1. Multiply. $\frac{2}{5} \times \frac{1}{7} =$

***Solution*:** Multiply the top numbers and multiply the bottom numbers.
$\frac{2}{5} \times \frac{1}{7} = \frac{2 \times 1}{5 \times 7} = \frac{2}{35}$.

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

***Solution*:** Keep the first fraction, change the division sign to multiplication, and flip the numerator and denominator of the second fraction.
Then: $\frac{3}{5} \div \frac{2}{3} = \frac{3}{5} \times \frac{3}{2} = \frac{3 \times 3}{5 \times 2} = \frac{9}{10}$

Example 3. Calculate. $\frac{5}{8} \times \frac{3}{4} =$

Solution: Multiply the top numbers and multiply the bottom numbers.
$\frac{5}{8} \times \frac{3}{4} = \frac{5 \times 3}{8 \times 4} = \frac{15}{32}$
Then: $\frac{2}{9} \div \frac{3}{8} = \frac{2}{9} \times \frac{8}{3} = \frac{2 \times 8}{9 \times 3} = \frac{16}{27}$



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Day 1: Practices

Simplify each fraction.

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

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

3) $\frac{10}{50} =$

4) $\frac{14}{16} =$

5) $\frac{15}{35} =$

6) $\frac{28}{42} =$

7) $\frac{64}{72} =$

8) $\frac{63}{108} =$

Find the sum or difference.

9) $\frac{3}{5} + \frac{2}{5} =$

10) $\frac{4}{7} - \frac{2}{7} =$

11) $\frac{2}{4} + \frac{5}{12} =$

12) $\frac{18}{21} - \frac{5}{7} =$

13) $\frac{12}{45} - \frac{1}{9} =$

14) $\frac{25}{56} - \frac{3}{7} =$

15) $\frac{22}{48} - \frac{3}{8} =$

16) $\frac{18}{39} + \frac{1}{13} =$

Find the products or quotients.

17) $\frac{2}{16} \div \frac{4}{3} =$

18) $\frac{1}{5} \div \frac{8}{25} =$

19) $\frac{9}{14} \times \frac{5}{21} =$

20) $\frac{15}{32} \times \frac{6}{15} =$

21) $\frac{2}{21} \div \frac{4}{3} =$

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

23) $\frac{7}{16} \times \frac{5}{20} =$

24) $\frac{21}{42} \times \frac{12}{15} =$

Day 1: Answers

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

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

3) $\frac{1}{5}$

4) $\frac{7}{8}$

5) $\frac{3}{7}$

6) $\frac{2}{3}$

7) $\frac{8}{9}$

8) $\frac{7}{12}$

9) $\frac{5}{5} = 1$

10) $\frac{2}{7}$

11) $\frac{11}{12}$

12) $\frac{1}{7}$

13) $\frac{7}{45}$

14) $\frac{1}{56}$

15) $\frac{1}{12}$

16) $\frac{7}{13}$

17) $\frac{3}{32}$

18) $\frac{5}{8}$

19) $\frac{15}{98}$

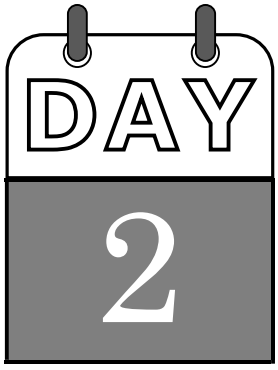
20) $\frac{3}{16}$

21) $\frac{1}{14}$

22) $\frac{7}{2} = 3\frac{1}{2}$

23) $\frac{7}{64}$

24) $\frac{2}{5}$



Mixed Numbers

Math topics that you'll learn in this chapter:



1. Adding Mixed Numbers
2. Subtracting Mixed Numbers
3. Multiplying Mixed Numbers
4. Dividing Mixed Numbers



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. $1\frac{1}{3}+2\frac{1}{2}=$

Solution: Let's rewriting our equation with parts separated, $1\frac{1}{3}+2\frac{1}{2}=1+\frac{1}{3}+2+\frac{1}{2}$.
Now, add whole number parts: $1+2=3$
Add the fraction parts $\frac{1}{3}+\frac{1}{2}$. Rewrite to solve with the equivalent fractions.
$\frac{1}{3}+\frac{1}{2}=\frac{2}{6}+\frac{3}{6}=\frac{5}{6}$. Now, combine the whole and fraction parts: $3+\frac{5}{6}=3\frac{5}{6}$

Example 2. Find the sum. $2\frac{3}{4}+3\frac{2}{5}=$

Solution: Rewriting our equation with parts separated, $2+\frac{3}{4}+3+\frac{2}{5}$. Add the whole number parts:
$2+3=5$. Add the fraction parts: $\frac{3}{4}+\frac{2}{5}=\frac{15}{20}+\frac{8}{20}=\frac{23}{20}$
Convert the improper fraction into a mixed number: $\frac{23}{20}=1\frac{3}{20}$.
Now, combine the whole and fraction parts: $5+1\frac{3}{20}=6\frac{3}{20}$

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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. $\frac{a}{b} - \frac{c}{d} = \frac{ad-b}{bd}$

☆ Write your answer in lowest terms.

☆ If the answer is an improper fraction, convert it into a mixed number.

Examples:

Example 1. Subtract. $2\frac{1}{4} - 1\frac{1}{5} =$

Solution: Convert mixed numbers into fractions: $2\frac{1}{4} = \frac{2\times4+1}{4} = \frac{9}{4}$ and $1\frac{1}{5} = \frac{1\times5+1}{5} = \frac{6}{5}$
These two fractions are "unlike" fractions. (they have different denominators). Find equivalent fractions with the same denominator. Use this formula:
$\frac{a}{b} - \frac{c}{d} = \frac{ad-bc}{bd}$
$\frac{9}{4} - \frac{6}{5} = \frac{(9)(5)-(6)(4)}{4\times5} = \frac{45-24}{20} = \frac{21}{20}$

Example 2. Find the difference. $3\frac{5}{7} - 2\frac{3}{4} =$

Solution: Convert mixed numbers into fractions: $3\frac{5}{7} = \frac{3\times7+5}{7} = \frac{26}{7}$ and $2\frac{3}{4} = \frac{2\times4+3}{4} = \frac{11}{4}$
Then: $3\frac{5}{7} - 2\frac{3}{4} = \frac{26}{7} - \frac{11}{4} = \frac{(26)(4)-(11)(7)}{7\times4} = \frac{104-77}{7\times4} = \frac{27}{28}$

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

Solution: Converting mixed numbers into fractions, $2\frac{2}{3} \times 3\frac{5}{6} = \frac{8}{3} \times \frac{23}{6}$
Apply the fractions rule for multiplication: $\frac{8}{3} \times \frac{23}{6} = \frac{8 \times 23}{3 \times 6} = \frac{184}{18} = 10\frac{2}{9}$

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

Solution: Convert mixed numbers into fractions, $5\frac{2}{3} = \frac{5 \times 3 + 2}{3} = \frac{17}{3}$ and $2\frac{2}{5} = \frac{2 \times 5 + 2}{5} = \frac{12}{5}$.
Apply the fractions rule for multiplication: $\frac{17}{3} \times \frac{12}{5} = \frac{17 \times 12}{3 \times 5} = \frac{204}{15} = \frac{68}{5}$
The answer is an improper fraction. Convert it into a mixed number. $\frac{68}{5} = 13\frac{3}{5}$

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

Solution: Convert mixed numbers to fractions: $4\frac{3}{4} = \frac{19}{4}$ and $3\frac{3}{8} = \frac{27}{8}$. Multiply two fractions:

$\frac{19}{4} \times \frac{27}{8} = \frac{19 \times 27}{4 \times 8} = \frac{513}{32} = 16\frac{1}{32}$

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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. $3\frac{1}{2} \div 1\frac{1}{3} =$

Solution: Convert mixed numbers into fractions: $3\frac{1}{2} = \frac{3\times2+1}{2} = \frac{7}{2}$ and $1\frac{1}{3} = \frac{1\times3+1}{3} = \frac{4}{3}$

Keep, Change, Flip: $\frac{7}{2} \div \frac{4}{3} = \frac{7}{2} \times \frac{3}{4} = \frac{7\times3}{2\times4} = \frac{21}{8}$. The answer is an improper fraction. Convert it into a mixed number: $\frac{21}{8} = 2\frac{5}{8}$

Example 2. Solve. $3\frac{2}{5} \div 2\frac{3}{7} =$

Solution: Convert mixed numbers to fractions, then solve:
$3\frac{2}{5} \div 2\frac{3}{7} = \frac{17}{5} \div \frac{17}{7} = \frac{17}{5} \times \frac{7}{17} = \frac{17\times7}{5\times17} = \frac{119}{85} = \frac{7}{5} = 1\frac{2}{5}$

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

Solution: Converting mixed numbers to fractions: $4\frac{4}{5} \div 2\frac{2}{3} = \frac{24}{5} \div \frac{8}{3}$

Keep, Change, Flip: $\frac{24}{5} \div \frac{8}{3} = \frac{24}{5} \times \frac{3}{8} = \frac{24\times3}{5\times8} = \frac{72}{40} = \frac{9}{5} = 1\frac{4}{5}$

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